ICT SKILLS AND ATTITUDE OF LIBRARY PROFESSIONALS OF MAULANA AZAD LIBRARY, AMU

DISSERTATION

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CERTIFICATE

This is to certify that *Mr. Ajaz Ahmad* has completed his dissertation entitled *"ICT Skills and Attitude of Library Professionals of Maulana Azad Library, A.M.U: A Survey"* in partial fulfilment of the requirements for the award of the degree of *Master of Library and Information Science (2008-09).* He has conducted the work under my supervision and guidance.

I deem it fit for submission.

Sudharma

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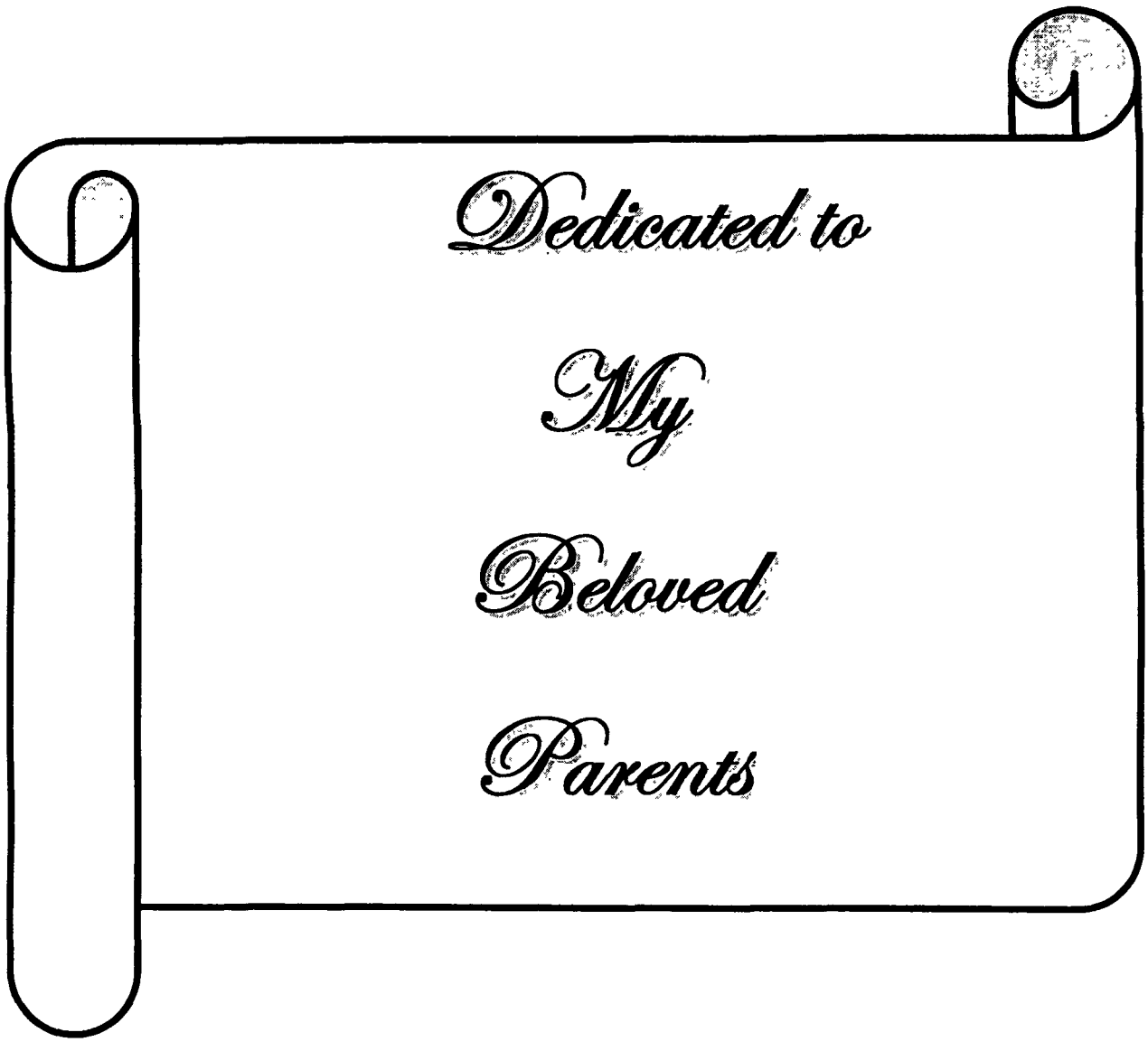
Dedicated to
My
Beloved
Parents

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Introduction

CHAPTER 1

INTRODUCTION

IT is well established as concept and as an idiom in Swedish. The Swedish Government has chosen to follow a definition of IT provided by the Swedish Government's Transport Committee, which means information technology, IT, is used as collective term for various technologies used for creation, collection, storage, processing, retrieval as well as communication of information, text, images and speech. Information Technology makes this possible independently of the amount of information or geographical distance. In brief, IT is a complex technical system for managing information and communication in which personal computers, e mail, databases, internet, broadband networks, telephone networks, mobile telephones, television, and media technology are involved. The acronym (Information and Communication Technology) is often used synonymously with IT, and ICT specifically includes the communication component.

DEFINITION OF INFORMATION

"An assemblage of the data in comprehensible form capable of communication. This may range from content in any format-written or printed on paper, stored in electronic databases, collected on the internet etc. to the personal knowledge of the staff of an organization. As the term below demonstrate (especially information engineering, information management, information science), information is a term that covers many interrelated activities which use the skills of librarianship. Content management and knowledge management are recent manifestation of the extent of the value and power of information."**[1]**

DEFINITION OF TECHNOLOGY

1. The application of scientific knowledge for practical purposes. **[2]**
2. (The study and knowledge of) the practical, especially industrial, use of

scientific discoveries.[3]

3. The application of practical or mechanical sciences to industry or commerce. [4]

4. The practical use of scientific knowledge in industry and everyday life. **[5]**

COMMUNICATION

The term communication is derived from Latin word "communis" that means to give and take or mutual sharing.

DEFINITION

There are several definitions of communication which may be defined as:

John Dewy expresses that 'communication' is a process of sharing experiences till it becomes a common position. It modifies the disposition of the parties who partake in it'.

In the word of **Fausti** and **Edward**, communication may be defined as 'it is an ongoing process. Ideas originate in an individual's cognitive framework, they are coded and sent through some channel or channels; the massage are received and decoded by another person who respond according to his own cognitive framework'.

Shanon and **Weaver** [6] explain, 'The word communication can be used in abroad sense to include all the procedures by which one mind may affect another. This of course, involves not only written and oral speech, but also music, the pictorial arts, the theatre, the ballet, and in fact all human behaviour'.

Eldridge tries to describe communication, as when social interaction involves the transmission of meanings through the use of symbols, is known as communication.

Berelson and **Gray** have to say communication: the transmission of information, ideas, emotion, skills, etc.

Barnard [7] defined communications "the foundation of cooperative group activity"

INFORMATION TECHNOLOGY

Information Technology is a generic term that covers the acquisition , processing, storage and dissemination of information of different types-textual, numerical, graphical and sound-and in all application areas e.g. Banking, business, science, technology-not just librarianship and microelectronics-based combination of computing and telecommunication technology has largely replaced by 'ICT', Information and Communication Technology.**[8]**

DEFINITION OF ICT

"Information and Communication Technology replacing the older 'IT' and the alternative 'C & IT' to express the combination of computing hardware and software with the capabilities of communication networks that provide new opportunities for teaching, learning and training through the delivery of digital content. The expression arose from an educational context but has since expanded into other sectors and its use is now widespread". **[9]**

UNESCO defines ICT as the " scientific, technological and engineering disciplines and management techniques used in information handling and processing information their applications: computers and their interaction with man and machine and associated social economic and cultural matter" **[10]**

The use of ICT provides quality services to users. Moreover, ICT have revolutionized activities in all spheres of life, especially library and information services.The presence of computer and information technologies in today's business and public sector organisations has expanded dramatically, Since the 1980s, about 50% of all new capital investment in organisations has been in information technology. Investment in emerging information technology applications can lead to productivity gains but only if they are accepted and used. It is widely acknowledged that organisations increasingly depend on information communication technology (ICT) for the execution of a variety of operational, tactical and strategic processes. However, although senior managers might make primary adoption decisions related to ICT, it is the individuals within organisations who are the ultimate users and consumers of the technology. **[11]**

NEED FOR ICT IN LIBRARIES

Today is beyond the working ability of any library to cater and satisfy the information requirement of the users without modern information communication technology. To provide pinpointed, expeditious and exhaustive information at the right time to the right person, it is essential to use modern information and communication technologies. It provides opportunities for libraries and information centres to widen the scope of their significance within organization they serve. In the present day context the information and communication technology is needed in libraries because of the following reasons:

1. Information explosion.
2. Availability of information in machine readable form.
3. Need to provide better service on wider scale by adopting online storage and retrieval techniques.
4. Multi-use of machine-readable records
5. Facilitates the storage, retrieval, dissemination and access of information much faster.
6. Information and communication technology offer a new dimension to share resources among the libraries by creating library network.
7. Many users for any number of times for various purposes can use machine-readable bibliographic data.
8. With the support of Information and communication technology, a user does not need to visit a completely mechanized library.
9. Using microform facility can solve the space problems.

ADVANTAGES OF ICT IN LIBRARY

A wide variety of advantages can be derived by the appropriate use of IT. Advantages of ICT can refer to anything useful produced with the assistance of technology which allows completing more tasks with greater accuracy and better quality in less time and for lower costs. It could be higher productivity; better quality or it l might be less tangible like or improving staff moral and motivation. In jobs of hours of manual works is possible for completion within minutes through ICT. Perhaps, there may not be any area of operation or service where you can not apply

ICT and get benefits in the following ways:

1 ICT helps to avoid duplication of efforts.
2 ICT facilities co-operation and resource sharing through library networks.
3 ICT helps to introduce new services and improve existing services.
4 ICT allows integration of various library operations.
5 ICT executes repetitive nature of work.
6 ICT facilities easy and wider access to all kinds of information sources.
7 ICT increases moral and motivation of library staff.
8 ICT helps to increase efficiency and effectiveness in library operations.
9 ICT ultimately helps to save time, space, energy and resources.
10 ICT helps to improve productivity and image of the library.

IMPACT OF ICT ON SOCIETY

1 Faster communication speed

In the past, it took a long time for any news or messages to be send. Now with the Internet, news or messages are sent via e-mail to friends, business partners or to anyone efficiently. With the capability of bandwidth, broadband and connection speed on the Internet, any information can travel fast and at an instant. It saves time and is inexpensive.

2 Lower communication cost

Using the Internet is cost-effective than the other modes of communication such as telephone, mailing or courier service. It allows people to have access to large amounts of data at a very low cost. With the Internet we do not have to pay for any basic services provided by the Internet. Furthermore, the cost of connection to the Internet is relatively cheap.

3 Reliable mode of communication

With the internet, information could be accessed and retrieved from anywhere and at anytime. This makes it a reliable mode of communication. However, the input to the computer is contributed by humans. If the data passed to the computer is faulty, the result will be faulty as well. This is related to the term GIGO.

GIGO is a short form for Garbage In Garbage Out. It refers to the quality of output produced according to the input. Normally bad input produces bad output.

4 Effective sharing of information

With the advancement of ICT, information can be shared by people all around the world. People can share and exchange opinions, news and information through discussion groups, mailing list and forums on the Internet. This enable knowledge sharing which will contribute to the development of knowledge based society.

5 Paperless environment

ICT technology has created the term paperless environment. This term means information can be stored and retrieved through the digital medium instead of paper. Online communication via emails, online chat and instant messaging also helps in creating the paperless environment.

6 Borderless communication

Internet offers fast information retrieval, interactivity, accessibility and versatility. It has become a borderless source for services and information. Through the Internet, information and communication can be borderless.

7 Social problems

There are some negative effects of ICT. It has created social problems in the society. Nowadays, people tend to choose online communication rather than having real time conversations. People tend to become more individualistic and introvert.

Another negative effect of ICT is:

- Fraud
- Identity theft
- Pornography
- Hacking

This will result a moral decedent and generate threads to the society.

8 Health problems

A computer may harm users if they use it for long hours frequently. Computer users are also exposed to bad posture, eyestrain, physical and mental stress. In order to solve the health problems, an ergonomic environment can be introduced. For example, an ergonomic chair can reduces back strain and a screen filter is used to minimize eye strain. **[12]**

IMPACT OF ICT ON LIBRARY AND INFORMATION SERVICES

ICT enabled library and information services

Developments in ICT have made significant impact on all spheres of human life. The impact has been rather prominent in case of service activities such as banking, health, transportation, education and libraries. Benefits of use of ICT in services can be broadly explained in terms of 4 Es, namely economy, ease, extension (or expansion) and efficiency.

For the Libraries, ICT has tremendously changed the Management of Resources or House Keeping Operations as well as the way services are delivered. While general IT application tools and Integrated Library Management Systems are largely used in housekeeping operations, like acquisition, cataloguing, circulation control, serials control etc; Internet has been used extensively as a resource as well as a tool to deliver the Library and Information Services (LIS). In this lesson we will study how ICT has had impact on delivery of LIS.

In the specific context of LIS, one of the implications of use of ICT is that Libraries can reach out globally to provide their services 24-hours a day in very cost effective manner. ICT has enabled users to avail many services without any human intervention, the role of the role of LIS professional is changing from an intermediary to a facilitator and enabler. In this Unit we have grouped the ICT enabled services into two categories as follow:

1. ICT enabled conventional LIS, that can be delivered more efficiently through use of ICT, and

2. New Services, which have been made possible due to developments in ICT.

ICT ENABLED CONVENTIONAL LIS

Online public access catalogue and user services

Library catalogue is perhaps the most important tool for locating material in the Library. Unfortunately until recently its value has been restricted by its physical form, most commonly a large card catalogue or a set of printed volumes. The advent of computers, with their ability to process large amounts of information and output in a variety of formats has finally brought the library to the customer, wherever he or she may be located, in the form of Online Public Access Catalogue (OPAC).

OPAC provides access to the catalogue through a computer terminal. OPAC allows searching the entire catalogue online, conveniently and quickly, using one or more search criteria. One can, for example, search by author, title, keywords, class number or one or more of these combined together. OPAC even shows the current status of a book, whether it is loaned out, available on the shelf or lying elsewhere. Another advantage of OPAC is its ability to display catalogue records in a variety of formats such as AACR2, MARC etc, and the records can be displayed in a desired order. For example one can display records arranged (sorted) by author, title or call number. Most library management packages offer printing of bibliographies from OPAC either on a printer or on a file. An OPAC terminal should be equipped with search software, which is usually part of integrated library management systems such as LibSys, EasyLib, NewGenLib, SOUL, Sanjay etc. Some integrated library management packages even use OPAC for other user services like reservation, membership enquiry and registration, interlibrary loans etc.

Another convenience that OPAC offers is accessibility from a remote computer, using a local area network (LAN) or a wide area network (WAN). With modern library systems offering interface to OPAC, it is also possible to provide access from anywhere in the world via Internet. An internet enabled OPAC is called Web OPAC. Web OPAC can be searched using any common browser, such as Microsoft Internet Explorer or Netscape Navigator. Web OPAC. Apart from searching OPAC, some libraries allow their remote users to avail certain online services like book reservations, loan requests for postal loan, loan renewals, membership application, address change, suggesting books etc.

Information services

Some of the important changes that developments in ICT have brought about in information services are:

1. Changes in formats, contents and methods of production & delivery of information products, and a new business model for use of information products. This requires procedural and infrastructural changes and cost implications in Libraries.
2. Emergence of Internet as the largest repository of information and knowledge.
3. Extinction or significant transformation of some of the conventional information services such as press clippings, contents pages, company information etc.
4. Use of new tools and technologies for dissemination of information.
5. Transformation of role of LIS professional as the subject specialist and end-user gets directly involved in the information work and consequent need for new skills.
6. Shift from physical to virtual services that offer convenience of time and location for access to services.

Today almost every important reference tools is available in electronic format whether offline (CDROM) or online, providing convenience of use, storage, timeliness and currency of information. Computer storage and compression technologies have made it possible to store large amount of data and information on small digital and optical media, eliminating requirement for large space for holding the printed sources. It is also faster and easier to keep the electronic sources up to date. For example a 24-volume Encyclopedia Britannica can be stored on a single CDROM, and online edition of chemical abstracts is updated every week. Information can also be delivered in a variety of media using different tools, such as CDROM, email, chat, discussion forum etc.

Since its inception, Internet has emerged as the largest repository of knowledge and information containing billions of documents, a major part of which is available

free of cost. It means that the library has access to more reference tools that are more up to date and cheaper. Finding particular information in an electronic reference tool is also very convenient and fast. Search engines now provide tremendous power to search and select Internet information effectively and in a user friendly manner.

From the LIS professional's point of view, new environment means adaptation to a different management paradigm. For example the focus has shifted from owning the information to right to use. This has opened a whole new area of interest in issues like licensing, copyrights, pricing and evaluation of services and products. New skills in information retrieval, marketing, web design, user training, technology management etc are required by the LIS professionals. The LIS professional's focus is on making partnership and designing user-friendly interfaces to facilitate users to do their information work.

In the following paragraphs we will now briefly discuss a few types of information services viz. Reference service, Bibliographic Service, and Current Awareness Service in ICT enabled environment. Some new information services are described later.

Reference Service

Asynchronous tools such as email, subject gateways, FAQs, and electronic libraries and interactive tools like chat rooms, virtual reference desk, and ask-me are replacing the conventional means of post, phone or in-person reference enquiries. Ask-a-Librarian allows the user to click on ask-a-librarian link to send a formatted enquiry to the reference librarian. The reference librarian either provides an answer, links to resources or link to a subject expert. Interactive tools now allow a reference interview online.

Bibliographic service

Compilation of bibliographies, reading lists and state-of-art reports are very parts of LIS work, particularly in research and academic libraries. Browsing through the manual indexes and abstracts is a tedious and time consuming work, and does not always produce up to date result. Availability of databases in electronic form on CDROM or online, offers convenient, efficient and cost effective information retrieval. Electronic databases also provide unique search features such as searching

on multiple criteria (key-word, subject, author, source, classification code, year of publication, language etc.), and variety of display formats & styles. Advance features like natural language query ranking the search results in also available in many databases. Web based services facilitate full text searches and link to full text of the documents. Dialog, STN and Silver Platter are some of the popular database companies that offer bibliographic and reference databases on CDROM and Online platforms.

Current awareness service

Current Awareness Services has been important means for keeping the users up to date in their areas of interest. A current awareness service may be as simple as copy of table of contents or a bulletin containing bibliographic records, of articles selected from the current issues of journals and other material, and usually organized by subjects. Libraries now compile current awareness bulletins using predefined search strategy and running on the database either on CDROM or online periodically and getting the desired output. Subject to copyrights, the output can also be stored on a local system, and disseminated online (internet, intranet) and offline (print, CDROM, email). Table of contents of most journals are available free from the publishers' sites. Some publishers even offer free email update of table of contents. A large number of electronic publishing sites or portals now offer current information via email to registered users. For example one can register on New York Times newspapers to receive summary of news on daily basis.

Internet has enabled a lot of innovations in contents, methods of production and distribution of current awareness products. Tools such as Listserv, Weblogs, Webzines and e-newsletters are common. Listserv give the latest information, hot topics, ideas and opinions, a chance to discuss issues, a source of advice and assistance. Weblogs literally log the web. They review, select and package the latest relevant information, in a subject area. Some examples of web based current awareness service are The NSDL Scout Report for Math, Engineering, and Technology (http://scout.wisc.edu/Reports/NSDL/MET/Current/) and Free Pint (www.freepint.com) are examples of web based current awareness services.

Document delivery

It is not possible for libraries to have everything that its clients may need. Libraries use document delivery services from other libraries and commercial organizations for copies of research papers etc not held by them. Locating a source and procuring the document requires considerable time and efforts and the process is laden with uncertainties. ICT has made the document delivery services very simple and reliable. From searching the holdings to ordering and delivery have been benefited by the use of ICT. A large number of libraries now host their up to date holdings on their website and can be searched on internet. Many library networks such as INFLIBNET and DELNET maintain union catalogue of their member's journal holdings. One such document delivery service provider British Library Document Supply Service (BLDSC) offers a flexible system of receiving orders and tracking. BLDSC's email based document supply system Artmail allows registered users to send requests through a formatted email that automatically is processed by BLDSC's system, which generates location of the sources. The documents can be received in print as well as electronic format. Online and web based database services such as STN provides link to document delivery services of their own or a third party. Some of the commercial document delivery services are Ingenta (http://www.ingenta.com/), and BioMedNet, OCLC (www.oclc.org/) and Science Direct (http://www.scienceDirect.com). Full text of electronic journal articles that are available in electronic form may also be downloaded through links provided by aggregator or gateway services such as Informatics's J-gate (www.j-gate.informindia.co.in/). Electronic journals are discussed later in this unit.

Inter-library loans and union catalogues

As described earlier, no library can fulfill all the needs of its users from its collection. Resource sharing through Inter-library loan is a necessity for the libraries. Access to the catalogue of partner libraries is crucial to inter-library lending. Union catalogues, standardization and machine readable catalogues are aimed at promoting resource sharing. Printed union catalogues and Computer Output on Microfiche (COM) catalogues and CDROM are now being replaced by web OPAC and web based union catalogues. Librarians can now access catalogues of thousands of libraries across the world using Internet. Developments in digital library and internet

technologies have made it possible to automatically update the catalogue records from member library systems, distributed searches using a single user interface, and value added services. RedLightGreen. (http://www.redlightgreen.com/) is one of the world's largest web based union catalogues. It. contains about 130 million records from 160 member libraries of Research Libraries Group (RLG) in USA. In India, bodies like INFLIBNET, DELNET are also developing union catalogues of books, serials and theses.

Audiovisual services

Audiovisual materials are important sources of information, education and entertainment. Many libraries particularly media libraries and large academic and public libraries hold audio visual material such as music, films, pictures and photographs etc. Old media of LP records and tape slide have long been replaced with audio and video tape. The new multimedia of audio CD, Video CD (VCD), and Digital Video Disks (DVD) have advantage of higher storage capacity, random access and longer life than audio and video tapes and cassettes. Many libraries allow their members to borrow these. Multimedia documents can now be played on standard PCs, stand-alone or networked. Recent developments in storage media, compression and encryption technology have made it possible to store large amount of multimedia documents on hard disk and disseminate through internet. Software such as Quick Time Player, Microsoft Media Player etc are now freely available to play or see these documents in a browser. You will learn more about various hardware, software and document formats that are used for creation, storage, distribution and use of digital multimedia documents later in the course.

Customer relations and user education

LIS being service organization, customer services and user training are important aspects of its activities. A continuous interaction with users for feedback and information is a must to maintain the standards of service. While the conventional means of interaction such as meetings, suggestion box, surveys and interviews are still important, use of new means of communications such as email, web forms, bulletins boards, discussion forums and listserv are fast replacing these. Not only these tools provide a fast, convenient and transparent and cost effective medium, but also offer scope for innovations and greater peer participation. Some of these tools can even be

used by the libraries to involve the users in book selection etc. LIS customer relations can be tremendously improved by innovative use of technology like virtual library tours, making interactive library maps and floor plan available on the library web site. A highly ICT enabled environment requires appropriate training to its users also. The contents of user training must include use of internet tools and resources. Conventional user education programmes can be supplemented with web based instructions and guides for use of resources. In the conventional class room based user education also ICT tools are used for presentation and demonstration.

ICT BASED NEW SERVICES

A library web page or Universal Resource Locator (URL) facilitates single window access to various web enabled library services. A URL could be as simple as a library web page listing the services with some links to catalogue and external free and subscribed resources or may include advance features like interactive helps and value added services such as subject gateways, self-help tools and frequently asked questions, and information about the library such as timings, calendar, rules etc can be hosted on the library web site. Apart from the ICT enabled conventional services, Libraries are making use of potential of internet and computing power to provide new and innovative services. In a web enabled environment the new LIS services can be grouped into the following three categories:

- Providing access to internet and internet based services
- Providing access to web based resources
- Providing access local or internal information resources in digital form

Internet access

Internet is not only a medium for digital communication but also the world's largest repository of information. However, under developed internet infrastructure in a country like India, poses a serious challenge to growth of ICT enabled services. Large segment of user groups may still be deprived of personal access to internet facility. Libraries, therefore, provide free or controlled access to internet and email. Depending upon the availability users can be given time slots for use of internet facility. Usually a few internet enabled terminals are provided in the library that can

be used by the visitors for internet access and email etc.

Access to web based resources

As already discussed, many types of library materials such as journals, books, patents, newspapers, standards, photographs, pictures, motion pictures or music are now available in electronic or digital form. From the user's point of view digital resources hold many advantages such as time and place convenience, timeliness, ability to search directly on text (as against the catalogue records), ability to link to further reading material, and ability to disseminate and share information. From the library's point of view digital format offers convenience of storage and maintenance, cost advantage, ability to target global users, etc. However, digital resources also pose human, social and technological problems, such as discomfiture in reading on the screen, problems in internet access and speed, poor infrastructure, lack of sufficient skills to use the digital resources, and perceptional change resulting from right to use rather than physical possession, etc. In this section, we will briefly discuss various some types of library materials such as journal, books, theses & dissertations, patents, course material etc.

E-Journals

Libraries have been exploring easy to cope with the problems of ever increasing prices of the journals, space requirements and decreasing level of usage as the journals get older. Nevertheless, libraries are required to maintain back issues of the journals, usually in bound form. Electronic Journal helps the librarians in addressing these problems to a great extent without significantly affecting the service levels. Electronic Journals can be accessed via internet from any web enabled PC. Depending on the type of subscription, one or more users can access the service simultaneously, either directly from an independent web enabled PC or in a local area network through a proxy server (IP addresses based access). Electronic journals also offer benefit of full text searching and downloading of articles. Many publishers of electronic journals offer their journals through consortia of libraries at much lower rates. INDEST (Indian Digital Library of Engineering, Science and Technology), and INFLIBNET are two such consortia operating in India. Access to articles in electronic journals can also be made through aggregator services which offer searchable databases of contents of e-journals from several publishers, and links to journal site

for full text. Emerald, OCLC and J-Gate are some of the example of e-journal aggregator services. The main disadvantage of electronic journal is that libraries can not physically possess the journals.

E-Books: E-Book has been described as a text analogous to a book that is in digital form to be displayed on a computer screen. E-books can be read just like a paper book, using dedicated E-Book reader such as Gem Star eBook or on a computer screen after downloading it. There are also some newer technologies developing such as electronic paper, which is much like paper, except that the text can be changed, and talking books in MP3 format. E-book offer advantages like portability, 24 hours access, text search, annotation, linking, and multimedia and self-publishing possibilities. Development of e-book is still in the infancy stage and issues like compatibility, e-book readers, availability and intellectual property rights are to be addressed before it can be implemented on large scale.

Electronic theses and dissertations (ETD)

Dissertations and theses produced at universities are important sources of information and knowledge for further research. A large number of universities have converted their theses and dissertation collection into digital libraries and have made it available on Internet for global access. A number of universities have also implemented Electronic Theses and Dissertation programmes, where researchers submit theses in electronic format. Some initiatives such as Networked Digital Library of Dissertation and Theses (NDLTD) (www.ndltd.org) in development of web based union catalogues of ETDs submitted over 100 libraries throughout the world are worth mentioning.

Patents

Many patent issuing authorities now have made their complete full text patent records online. For example United States patent documents can be searched and downloaded free of cost from (www.uspto.gov/patft/index.html). Some of the commercial organizations such as Derwent also provide downloading of full text patent from either an online database vendor (e.g. Dialog, STN) or directly from their site to the subscribers

Course material

A large number of web based course ware and teaching aids are being developed to facilitate flexible open learning by many universities and commercial organizations. Many academic institutions have adopted such course material for their curricula. Libraries can provide access to course material to the learners and teacher and thus contribute to open learning. This can be done by providing links to the courseware sites through subject gateways or provide local access after downloading the material. Some of the important sites where web based course material and tools can be found are Ask ERIC (http://ericir.syr.edu/), CAREO-Campus Alberta Repository of Educational Objects Alexandria (http://www.careo.org) , LESTER-Learning Science & Technology Repository (http://lester.rice.edu/), MERLOT-Multimedia Educational Resources for Learning and Online Teaching(http://www.merlot.org/), and GEM- The Gateway to Educational Materials (http://www.thegateway.org/) .

Subject gateways

Preparing subject guides or path finders has been an intellectual activity for reference librarians. Such guides are normally prepared in consultation with the subject experts or by a subject librarian, who picks up the sources after careful evaluation. Random surfing of the Internet may be a popular pastime, but is an inefficient use of bandwidth and time. One of the most useful ways to discover quality resources in a particular subject area is use of subject-based Internet gateways and directories. A subject gateway thus is a facility that allows easier access to web based resources in a defined subject area. These are basically a dynamic catalogues of pre-dominantly online resources, though some libraries include information on print resources as well. Generally access to subject gateways is provided through library website, designed to help library users discover high-quality information on the internet in a quick and effective way. A simple subject gateway may list web based or print resources on a given subject with links to the website of the resources and some useful information such as keywords, class number, description and how to access. Advanced subject gateways offer searchable catalogue or even full text search facility on listed sources.

Digital library and archives

Many Libraries traditionally have been repositories of local information and heritage documents such as manuscripts, rare books, maps, photographs and paintings etc. Archives or record management is also part of LIS function, particularly in business and research organizations. In other cases such as university libraries, documents generated in-house such as dissertation and theses, research reports etc represent the intellectual strength of the institution. Libraries are developing digital repositories of such resources, and providing Internet or intranet access to these. Large public and academic libraries also provide up to date local information via internet. Digital libraries are a natural progression from electronic document sharing. The main benefit of digital library is the ability to provide 24-hour, remote access to high-demand or restricted materials for multiple concurrent users. Setting up a digital library can either be done using 'off-the-shelf' digital library products, document management products or library management products capable of digital library management; or in-house system development using open archives software. Some of the off-the-shelf products are from Blue Angel Technologies, CONTENTdm, Crossnet Systems Ltd, Endeavor Information Systems , Epixtech, ESP, Ex Libris ,Fretwell-Downing Informatics, IBM, Sirsi, and SydneyPlus. Greenstone (http://www.greenstone.org) is a leading open source digital library management software.

CD-Net/CD-ROM Server/CD Tower

CD-Net/CD-ROM Server/CD Tower has several advantages, especially in a special library environment. This facility will be helpful to provide access to CD-ROM databases and other CD-based information resources. Library users can access this facility through the network and they can access the same resources simultaneously. **[13]**

ICT INFRASTRUCTURE

ICT infrastructure is usually considered with respect to its main areas, which are: hardware, software, and telecommunication. The infrastructure remains the main bottleneck to the development of ICT in libraries. Sufficient infrastructure is very essential for the successful application of ICT in libraries.

Hardware

1 Basic hardware facilities like servers, computer workstations/nodes, printers, etc.

2 scanner, barcode printer, barcode scanner, Net Server, CD-ROM Tower, etc

Software

To bring the hardware establishment into activation, proper software facilities are required by the libraries to serve up-to-date information to the clientele.

1 Library Management Software, whether it was commercially prepared or in-house prepared.

2 Digital library software like Greenstone. CDS/ISIS, Alice for Windows, SLIM++, LibSoft, Winisis, Winsoft, Winlis, Chronicles 2001, E-grandhalaya, and LibsuitASP+.

3 CD-Net Management

Telecommunication and networking

The transmission of data, especially digital data from one point to a remote point, is very essential. Libraries are using telecommunication and networking technology for transmitting digitized data of all kinds.

1 Internet

2 Intranet

ICT-BASED RESOURCES AND SERVICES

The ability of computers to store and process vast amount of information coupled with the ability of communication technology to transmit this information from one location to another has revolutionized storage, retrieval, and dissemination of information in libraries. The value of ICT-based resources and services are that it can be easily shared, distributed, updated, manipulated, and rapidly searched. These resources are available in static physical forms such as CD-ROMs, or in a fluid form like the Internet. **[14]**

ICT ADVANTAGES

1 ICT reduces labour and saves a lot of time of the staff and users too. LAN is used to link a variety of different communication devices. LAN provides cost effectiveness in various services in It

2 Allows secured resource sharing in library.

3 Internet and E-mail system in library enable the students and scholars to remote access, worldwide

4 Communication. Professional communication among library and Information Science societies has become easy with the help of E-mail.

ICT DISADVANTAGES/LIMITATIONS

Impact of ICT made various problems in online publishing. In case of e-journals and online databases,

1 The library loses its access after stopping the subscription. The publishers do not give access to the issues which were subscribed. Besides these ICT has following general disadvantages:-

2 Expensive

3 Need Expertise

4 Socio technical issues

5 Information insecurity

6 More technology dependence

7 Less use of human brain **[15]**

ATTITUDE OF LIBRARY PROFESSIONALS TOWARDS ICT

DEFINITION OF ATTITUDE

1. "A mental view or disposition specially as it indicates opinion or allegiance"**[16]**

2. "A steeled way of thinking or feeling. a position of the body indicating a particular mental state".**[17]**

3. "A feeling or opinion about something or someone or a way of behaving that is caused by this. **[18]**

4. "A way of thinking or behaving''. **[19]**

5. "Feeling or opinion about something or someone or a way of behaving that follows from this". **[20]**

Attitudes are inclinations and feelings, prejudices or bias, preconceived notions, ideas, fears and convictions about any specific topic. Many have cited Allport (1935),**[21]** who states that an attitude "is a mental and neutral state of readiness organized through experience exerting a directive or dynamic influences upon individual's response to all objects or situations with which it is associated." This study explores the response and readiness of librarians to ICT applications. Attitudes represent the conceptual value of these technologies in the minds of the librarians, not the values of the technologies themselves. Positive attitudes are fundamental in implementing new technologies.

Implementing information communication technology (ICT) in the library depends largely on librarians' attitudes toward it. The application of ICT has caused significant changes in libraries: automated cataloguing, circulation, information retrieval, electronic document delivery, and CD-ROM databases, for example, the advent of the Internet, digitization, and the ability to access library and research materials from remote locations created dramatic changes by the end of the twentieth century. Expert systems, wireless networks, virtual collections, interactive Web interfaces, virtual reference services, and personal Web portals have brought changes since the start of the new millennium. There have been fast and significant changes in librarianship, where digital and electronic libraries complement, and in some cases replace, traditional libraries.

Technological change is posing a particular challenge to librarians in developing countries. Librarians in developed countries moved quickly to learn and adopt new information technologies. ICT was introduced to perform library functions and provide innovative user services. Librarians gained knowledge of new technologies through continuing education programs, professional training, and revisions to library school curricula, which helped them benefit from the new

technologies. Their libraries became equipped with appropriate hardware and software. The story in developing nations is quite different. **[22]**

ATTITUDE FORMATION

Historically there has been much psychological research undertaken in the area of attitude and attitude formation. Common findings in the research show that attitudes and beliefs are linked, attitudes and behaviour are linked and attitudes are essentially likes and dislikes. Bem (1970)**[23]** maintains that "our affinities for and aversions to situations, objects, persons, groups or any other identifiable aspects of our environment, have roots in our emotions, behaviour and social influences upon us.

The word attitude connotes a subjective or mental state of preparation for action. Attitudes find their roots in our beliefs and they influence our behaviour. They represent the way in which we view the world and organise our relationships. Attitudes are literally mental postures and guides for conduct to which each new experience is referred before a response is made. Droba (1974) **[24]** described an attitude as a mental disposition of the human individual to act for or against a definite object.

Krueger and Reckless (1931) [25] defined attitude as a residuum of experience which conditions and controls further activity. In this way they can be viewed as acquired tendencies to act in specific ways, towards or against an environmental factor which is imbued with either negative or positive value. More recent research indicates that attitude represents a summary evaluation of a psychological object and is described both internally and externally in dimensions such as good-bad, likeable-dislikeable, harmful-beneficial, pleasant-unpleasant (Ajzen & Fishbein, 2000; Eagly & Chaiken 1998). **[26], [27]**

Krech, Critchfield and Livson (1958) [28], describe attitudes as being comprised of three main components: the cognitive, the affective and the behavioural. The cognitive component categorises the individual's ideas and beliefs regarding an event or object. This cognitive category must also become associated with either a basically pleasant or unpleasant event. This results in the category becoming charged with meaning and a behavioural pattern develops. Behavioural

patterns may have already developed in the sample towards interaction with technology. One of the aims of this study is to investigate the attitudes that coincide with those behavioural patterns.

Human beings constantly search for meaning and categorizing events and environments is one way of doing exactly that. Fine discrimination of the environment is beyond the capacity of human attention so individuals treat many discriminated stimuli as instances of the same phenomenon **(Krech et al., 1958, p. 101)**. Language plays a key role in labeling categories and their attributes. Similarly, each label may be denoted differently and the meaning changed accordingly. The affective component is the result of the changing of a category. Once a category has been formed, it becomes associated with meaning and therefore represents either a favourable or unfavourable state. The behavioural component is comprised of beliefs regarding the correct behaviour towards members of a particular category. Over a period of time and following a series of experiences students develop either favourable or unfavourable feelings associated with certain interactions. These feelings or 'states' may well form the basis of their attitudes towards their own self conceptualisation of the use of (ICT) as a means of enhancing learning

According to Markman and Brendl (2000) [29], people evaluate objects in relation to currently active goals. The life cycles of particular goals are dependent upon beliefs and values and the influence of significant others. Human beings therefore, experience a positive reaction or attitude towards objects or events that assist in the attainment of their personal goals, and negative reactions and attitudes towards objects or events that in some way hinder the attainment of desirable outcomes. Attitudes are often designated as being the result of several major influences. The social group to which the individual belongs is perhaps the most influential. In this way, both the group to which the individual belongs and the groups to which he/she aspire to belong, exert an enormous pressure and influence on attitude development.

The idea that attitudes function to evaluate psychological objects would appear to imply that individuals hold only one attitude towards a given object at any one time. Recent research indicates however that this is simplistic and that when attitudes change, the new attitude may override but not completely replace the old

attitude. Wilson et al. (2000) **[30]** suggests that a model of dual attitudes is a more realistic conceptualization in that people can hold two different attitudes towards an object at any given time. Wilson et al. (2000) posits that while an individual is capable of interacting with two attitudes at once, one can be viewed as implicit while the other operates more manifestly as explicit in expression. The implicit attitude is understood to be automatically activated when the individual is presented with an attitude object while the explicit is more likely to require cognitive effort. A number of studies of prejudicial attitudes (Bargh et al., 1999) **[31]** revealed that while implicit attitudes could emerge towards a particular race of people for example, explicit attitudes could override these reactions under the influence of group norms and with access to cognitive resources. In such a way more favourable attitudes could be retrieved. Wilson et al. (2000) found that implicit attitudes exerted more influence than explicit attitudes over involuntary non-verbal behaviour signaling discomfort such as excessive blinking, avoidance of eye contact and spatial distance. During life, experiences lead to the formation of many different beliefs about objects, actions and events. These beliefs may be the result of direct observation or inference. Some attitudes may be stable over time, others may exhibit frequent shifts.

According to Fishbein and Ajzen (1975),[32] a person's attitude towards an object is primarily determined by no more than five to seven beliefs that are salient at any given time. It appears impossible to obtain a precise measure of the beliefs that determine an individual's attitudes, since the number of salient beliefs may vary from person to person. However an approximation can be obtained by considering the first few beliefs. **Fishbein and Ajzen (1975)** postulated that attitudes are inextricably linked to and based upon beliefs and the evaluative responses associated with those beliefs. Ajzen and Fishbein (2000) went further to infer that evaluative meaning arises spontaneously and inevitably as we form beliefs about an object. Each belief associates the object with a certain attribute which is embedded in context, culture and memory. According to **Haugtvedt (1997) [33]** and **Miniard and Barone (1997) [34]** beliefs are only one possible influence on attitudes. **Zajonc (1980) [35]** had already indicated in earlier research that attitudes may also be controlled by affective processes. This is a position which is supported by the work of **Verplanken et al. (1998) [36]** who suggests that evaluative response times were less for those participants being asked how they *felt* as opposed to how they *thought* about attitude

objects. Verplanken's study indicated that the affective aspects underlying attitudes are more easily accessible in memory and it may be that these aspects play a larger role in the formation of attitudes than previously thought. It then becomes a lengthy task to alter a person's belief system and this clearly must occur over time.

Fishbein and Ajzen (1975, 1980) and Ajzen (1991) worked further towards the development of the theories of *reasoned action* and *planned behaviour* as a means of explaining, predicting and changing particular behaviours. These theories have resulted in a useful conceptual framework which has at its centre the roles of beliefs, attitudes, norms, perceived behavioural control and intentions as crucial indicators of particular behaviours. Reasoned action is best described as a process by which an individual arrives at an intention. According to Ajzen and Fishbein (2005) behavioural intentions are thought to result from beliefs about performing the behaviour. Behavioural, normative and control beliefs that people hold about performing a certain behaviour are influenced by a range of background factors such as personality, mood, values, education, ethnicity and gender amongst others. The central premise of the model concerns the group of effects that start with the development of behavioural, normative and control beliefs. These in turn directly influence the formation of an attitude towards the behaviour, the subjective norm and perceived behavioural control which then produces intention (to behave) and the behaviour itself. Individuals who utilise this process are said to have engaged in *reasoned action* (Ajzen and Fishbein, 2005). While it is understood that shortcuts can be made in this process, it is also accepted that over certain periods of time, attitudes, norms, perceptions of control and intentions are rehearsed and therefore become readily accessible to each individual. In this way a previously formed attitude towards interacting with technology for example, can be readily accessed without the need to debate all the perceived advantages and disadvantages of doing so.

MAULANA AZAD LIBRARY

HISTORY

M.A. Library was established in 1877 with the personal collection of Sir Syed Ahmad Khan, the founder of Aligarh Muslim University. It was further enriched by the donated by his associates. The library was named after Lord Lytten as Lytten Library. Foundation stone of the present building was laid by the first Prime Minister of India Pandit Jawaharlal Nehru in 1995 and was inaugurated by him in 1960.The library was renamed after great scholar and first education Minister of India Maulan Abul Kalam Azad, the great Educationist, Statesman & the first Education Minister of independent India.

PRESENT SCENARIO

Maulana Azad Library is regarded as second largest University Library of Asia with more than 11.5 lakh books/documents.

The present grand seven storied building surrounded by 4.5 acres of land. The Oriental Division of Maulana Azad Library comprising of about two lakh printed books and periodicals including 10,000 items belonging to rare category in Urdu/Persian/Arabic/Hindi & Sanskrit forms the most significant part of the collection. Donations received from great bibliophiles and literary persons are designated as special collections by the names of their donors. The Urdu collection with more than one lakh books on almost all aspects of Indian Life and Culture forms the largest part of Oriental Division. A substantial number of rare and out of print publications of 19th century belong to the Scientific Society of Sir Syed Ahmad Khan, Fort William College (Kolkata), Delhi College, Agra College and from the Royal Printing Presses of the court of Delhi and Oudh.

One of the most priced collection of the library is that of 16000 rare manuscripts, one of which written on parchment in Koofi script is claimed to be inscribed by Hazrat Ali (the fourth caliph of Islam), 1400 years ago. Several royal decrees of Mughal emperors namely Babur, Akbar, Shahjahan, Aurangzeb, Shah Alam etc. and also translation of Sanskrit works such as Bhagwad Geeta, Mahabharata and Leelawati in Persian by Abul Faiz Faizi, a scholar in the court of Mughal Emperor Akbar are some

of the highlights of the manuscripts collection of this Library. No wonder than, the Library known for its collection of oriental manuscripts is frequented by the scholars of Orientalia and Medieval India. Yet another highlight of the Manuscript Collection is the painting of TULIP flowers, considered as magnam opus of Mansoor Naqqash, the celebrated artist in the court of Emperor Jahangir. Some other valuable Sanskrit works translated into Persian forming part of manuscript collection are – Ayurveda in Telugu and Bhasdas in Malyalam script written on palm leaves. Apart from the collection of orientalia the Library has a vast collection of books in English belonging to different subjects especially in Science & Technology.

The library provides the whole university campus wide access to online journals through a well-equipped Computer Lab. Digital Resources on many subjects are made accessible through a Digital Resource Centre, inaugurated by the Vice-Chancellor on the 16th March 2009 . All the issue able books in the Library are bar coded for automated check in and check out. About 5000 students, teachers and other members of the University visit the Library daily. The library is open from 8.00 a.m. to 2.00 a.m. (next day).

The library has started Data mining in a recently developed Information Centre, where free e-resources from the web are tapped for the benefit of university community.

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Chapter-2

Review of Related Literature

CHAPTER 2

REVIEW OF RELATED LITERATURE

One of the most important steps in research project is the conducting of the literature review. A literature review is designed to identify related research to set the current research project within a conceptual and theoretical concept. According to Bourner (1996) there are good reasons for spending time and effort on a review of literature before embarking on a research project. These reasons include:

- To identify gaps in the literature
- To avoid reinventing the wheel (at the very least this will save time and it can stop researcher from making the same mistakes as others)
- To carry on from where others have already reached(reviewing the field allows you to build on the platforms of existing knowledge and ideas)
- To identify other people in the same fields (a researcher network is available resource)
- To increase your breadth of knowledge of your subject area
- To identify seminal works in your area
- To provide the intellectual context for your own work, enabling you to position your project relative to other work
- To identify opposing views
- To put your work into perspective
- To demonstrate that the investigator can access previous work in an area
- To identify methods that could be relevant to one's project

Areti Valasidou (2008)[1] conducted a study under the title "The Impact Of ICT In Education: The Case Of University Of Macedonia Students" The aim of this paper is to describe the results of a research that took place in order to examine the opinion and impact of Information and Communication Technology to undergraduate students of University of Macedonia. The research was conducted with two main purposes. The first purpose is to investigate how familiar are the students of international and

political studies with the use of ICT on and off campus. The second purpose of the research is to examine the possible relationship between the use of ICT and the gender and the students' performance (marks) at the "Introduction to Computers" module that is part of their programme of studies. The research can be divided into two main parts: the first part includes the research questions that attempt to investigate how familiar are the students of international and political studies with the use of ICT on and off campus. The second part of the research examines the possible relationship between the use of ICT and the gender as well as the students' performance on the computers module.

The following research questions where examined:

1. Do students use ICT to support their studies?
2. What are the students attitudes toward Information Technology?
3. Does gender impact on the use of ICT?
4. Is students performance affected by their ICT usage?

This study found that students of political and social sciences were generally favourable to ICT usage. Furthermore, male students showed to use ICT and more often than women.

There are no significant differences between male and female students referring internet and e-mail usage except the computers access off campus. Males seemed to have access to computers off campus more often than women. About students performance, the survey revealed that students that use computers at home tend to score higher than students with no access.

H.K Kari (2008)[2] conducted a study under the title "The academic librarian and the inernet:A survey,attitude and impact in Nigerian universities".The purpose of this survey was to learn how academic librarians use the internet and theire attitude towards the internet and its impact in Nigerian universities.The objectives of the study were follow:

- To determine how many academic libraries are connected to the internet in Nigeria.
- To determine the attitude of academic librarians towards the internet

- To determine how skillful are academic librarian in new technology.

For the study data has been collected through questionnaire.Research questionnaire were administered to 100 academic librarians across the country.The name of the librarian were picked from the "Who is who in Nigerian University Academic Libraries.The finding of the study were that a great majority of the libraries are not connected to the internet and that academic librarians are not not using the internet to make the material available for use for students and faculty members.The issue of the internet training was adequetly addressed in the current study

Ioanna Palaiologou (2008)[3] conducted a study under the title "An analysis of educational studies undergraduate students' perception of ICT: a case study" The aim was to investigate students' self perception of their ICT skills over a period of three months. Secondly, it aimed to investigate how students' self perception changed over a module created to improve ICT skills of the students as a part of the study programme. The research project attempted to assess students' self perception of their ICT skills using an ICT Audit

Test prior to and after the module had finished. The statistical nominal analysis of the ICT audit revealed that the most important finding was that Level 5 students with computer anxiety or less preparation for using computers are most at risk of not taking advantage of the wide range of universities ICT resources. However, the qualitative data revealed that these students overcame their computer anxiety when ICT is purposeful and contextualized.

Jana Fančovičová and Pavol Prokop (2008)[4] conducted a study under the title "Students' Attitudes Toward Computer Use in Slovakia". Data collection method was based on the questionnaire focusing implementation of computers in the school. It was found out that attitudes toward ICT use among schools were different; this was, however, not caused by the relative ratio student: computer per se. The effect of gender was weak, because it was found significant differences only in the behavioural dimension. This is somewhat surprising, because greater differences especially in the affective dimension could be expected (Beckers & Schmidt 2001; King, Bond, & Blandford, 2002; Palaigeorgiou et al., 2005). On the other hand, no relationships between ownership of home computer, age, or students' professional orientation were found. Interestingly, the time spent with computers positively correlated only with the behavioural dimension.

Lou Siragusa and Kathryn C. Dixon (2008)[5] conducted astudy under the title"Planned behaviour: Student attitudes towards the use of ICT interactions in higher education". Objective of this study is to determine the attitudes of a small group of undergraduate students in a higher education setting towards their use and engagement of ICT interactions. For the study data has been collected through questionnaire.

The majority indicated that interacting with ICT would result in positive outcomes and that most of the sample described a desire to feel a sense of competence when engaging with technology. This is interesting when compared to the qualitative findings which seem to indicate that at least thirty three percent of the responses suggested that the sample had experienced feelings of anxiety and intimidation when actually working through the ICT interaction.

Prachit Intaganok, Peter Waterworth, Thanasak Adsavachulamanee, Guah Grasaresom and Udom Homkome (2008)[6] conducted a study under the title "Attitude of staff to information and communication technologies in provincial universities in Thailand" This paper reports on a project at a regional Thai university collected data on staff skill levels an attitudes toward ITC. It presents and analyses survey data on competence levels in a range of ICT skills required for scholarly work and teaching and on the level of anxiety and enthusiasm staff had towards the use of ICT in their work. For the study data has been collected through questionnaire. The finding of the study was that poor skill levels are significantly associated with higher levels of anxiety in staff regarding ICT use. Skill levels were not significantly related to staff age, subject specialization gender or year of teaching experience but they were related to access to a home or office computer. Negative attitude towards ICT were significantly related to higher levels of anxiety.

Suresh jange (2008)[7] conducted a study under the title "Anxiety, attitude and information use behaviour of school teachers in central schools" The research paper presents the findings of a study that explores the use of school libraries and attitude, anxiety and level of satisfaction of teachers towards using information sources and services, level of collaboration between librarians / library staff and teaching activities, searching methods, difficulties faced and level of association between personal characteristics and use of library resources. The objectives of the studies were to determine the use of School libraries by Teachers in Central Board of Secondary Education (CBSE) schools of Hyderabad Karnataka region in India to

understand the frequency and purpose of visiting to the school library, explore the Information sources and services used by the teachers for their academic and teaching pursuit, attitude and level of satisfaction of teachers towards using information sources and services, level of collaboration between librarians / library staff and teaching activities, methods adopted for searching information in libraries, difficulties faced and level of association between personal characteristics and use of library resources. Research data collected using a questionnaire that had been pre-tested with teachers from both preparatory and secondary levels and incorporated accordingly. The first part of the questionnaire dealt with the general profile of the respondents and collected information about their gender, teaching experience, and academic and professional qualifications. The second part of the questionnaire investigated various aspects of the use of school libraries by teachers, such as the frequency of use of the school library, the type of library resources used and for what purposes, and the perception of teachers of the usefulness and adequacy of their school library resources and about the collaborative relationship between teachers and their school librarian, and the problems faced in their collaboration efforts.

The results showed that about less than half of the teachers generally did use their school libraries daily mainly to refer books, which indicates that more than half of the teachers do not use much of their information resources effectively, mainly due to the inadequacy of their school libraries in terms of educational materials. In addition, teachers typically did not collaborate with their school librarian in planning their lessons or other academic activities, although 61.2% agree that they collaborate with each other.

Hamdan Mubarak Al-Khashab (2007)[8] conducted astudy under the title "Attitudes towards E-Learning: An Empirical Study in Kuwait". Objective of this study is to analyze the attitudes toward e-learning in Kuwait. More specifically objective is to analyze the Kuwaiti society's attitudes and expectations towards e-learning, examine the impact of some variables such as gender and educational or literacy level on the attitudes towards e-learning in Kuwait, and test the validity of the recently developed e-learning scale in a non-Western culture sphere.

A questionnaire based on the newly developed e-learning scale was used to gather the data. The study proves the scale in an Arab non-western context.

The results show that there are significant differences in the attitudes toward e-learning based on educational level. On the other hand, the results show no

differences in the attitudes toward e-learning based on volunteers' gender. Also, the study exposes that Kuwaiti students generally have good attitudes towards e-learning.

The study deeply discusses factors associated with the attitudes toward e-learning in Kuwait. This study contributes to the literature on e-learning studies by systematically measuring the attitudes towards e-learning in Kuwait.

Mohamed Haneefa (2007)[9] conducted a study under the title "Application of information and communication technologies in special libraries in Kerala (India)"Purpose – This study was conducted to investigate the application of information and communication technologies (ICT) in special libraries in Kerala, India. Design/methodology/approach – The following methods were used to collect data for the study: questionnaire survey of librarians and library users, semi-structured interviews with librarians, and observational visits in the libraries. This study was confined only to the automated special libraries in Kerala.

Findings – The analyses revealed that though the libraries had hardware, software, and communication facilities to some extent, ICT-based resources and services were not reaching the users to the expected extent. Library automation in special libraries in Kerala was largely commenced during the period 1990-2000. CDS/ISIS was used more in the libraries than any other software. The library catalogue found to be the most popular area for automation. The ICT-based resource used by the largest percentage of the users was the e-mail. Most of the libraries were hampered by lack of funds, lack of infrastructure, and lack of skilled professionals to embark on automation of all library management activities and application of ICT. A good number of the library users were not satisfied with the application of ICT in their libraries and indicated ''inadequate ICT infrastructure'' as their major reason for dissatisfaction. They proposed a variety of measures of formal orientation and training on ICT to become more effective users.Originality/value – The study provides recommendations to enhance library automation and effective and efficient application of ICT.

Paul Adesola Adekunle, Rosnold Ogie Omoba and Adeyinka Tella (2007)[10] conducted astudy under the title "Attitudes of Librarians in Selected Nigerian Universities toward the Use of ICT" The study targeted librarians in libraries in Oyo state of Nigeria that have automated systems. These are: Kenneth Dike Library, University of Ibadan; Ladoke Akintola University of Technology Library; The

Polytechnic Ibadan Library, and International Institute of Tropical Agriculture (IITA) Library, Ibadan.All librarians in the population were included in the survey.

This study uses a descriptive survey method.The results reveal generally that librarians in the study have a positive attitude toward the use and implementation of ICT in their libraries. The reasons may include an understanding of the benefits of ICT. Training and knowledge are the *sine qua non* of a positive attitude toward ICT. In this era, when new technologies are introduced almost daily, it is essential for librarians to keep up with ICT developments. The fear of some in the developing world toward ICT is widening the digital divide. In Africa, it is time to bridge the digital gap. African libraries that are not yet automated should begin thinking about it now. Training is the first step, which will reduce fear when implementation of ICT begins.

TM Link and RMarz (2006)[11] students' computer skills, the number of students having difficulty with e-learning, and the number of students opposed to e-learning. The study was conducted in an introductory course on computer-based and web-based training (CBT/WBT). Students were asked to fill out a questionnaire online that covered a wide range of relevant attitudes and experiences. While the great majorities of students possess sufficient computer skills and acknowledge the advantages of interactive and multimedia-enhanced learning material, a small percentage lacks basic computer skills and/or is very skeptical about e-learning. There is also a consistently significant albeit weak gender difference in available computer infrastructure and Internet access. As for student attitudes toward e-learning, we found that age, computer use, and previous exposure to computers are more important than gender. A sizable number of students, 12% of the total, make little or no use of existing e-learning offerings.

Many students would benefit from a basic introduction to computers and to the relevant computer-based resources of the university. Given to the wide range of computer skills among students, a single computer course for all students would not be useful nor would it be accepted. Special measures should be taken to prevent students who lack computer skills from being disadvantaged or from developing computer-hostile attitudes.

J Derup (2004)[12] conducted a study under the title "Experience and attitudes towards information technology among first-year medical students in Denmark: longitudinal questionnaire survey" .As more and more information technology (IT) resources become available both for support of campus- based medical education and for Web-based learning, it becomes increasingly interesting to map the information technology resources available to medical students and the attitudes students have towards their use. To determine how extensively and effectively information handling skills are being taught in the medical curriculum, the study investigated Internet and computer availability and usage, and attitudes towards information technology among first-year medical students in Aarhus, Denmark, during a five-year period. In the period from 1998 to 2002, students beginning the first semester of medical school were given courses on effective use of IT in their studies. As a part of the tutorials, the students were asked to complete a web-based questionnaire which included questions related to IT readiness and attitudes towards using IT in studies. A total of 1159 students (78%) responded. Overall, 71.7% of the respondents indicating they had access to a computer at home, a number that did not change significantly during the study period. Over time, the power of students' computers and the use of e-mail and Internet did increase significantly. By fall 2002, approximately 90% of students used e-mail regularly, 80 % used the Internet regularly, and 60 % had access to the Internet from home. Significantly more males than females had access to a computer at home, and males had a more positive attitude towards the use of computers in their medical studies. A fairly constant number of students (3-7 %) stated that they would prefer not to have to use computers in their studies.

Taken together with our experience from classroom teaching, these results indicate optional teaching of basic information technology still needs to be integrated into medical studies, and that this need does not seem likely to disappear in the near future.

Qun G. Jiao and Anthony J. Onwuegbuzie (2004)[13] conducted astudy under the title"The Impact of Information Technology on Library Anxiety: The Role of Computer Attitudes" The purpose of this study was to investigate the relationship between computer attitudes and library anxiety among African American graduate students. Library anxiety is a lack of knowledge about the location of materials, equipment, and resources of the library; how to initiate library research; or how to proceed with a library search.6 Library anxiety is an unpleasant feeling or emotional

state with physiological and behavioral concomitants that come to the fore in library settings. For the study data has been collected from the students. Students were required to sign an informed-consent document that was given during the first class session of the semester. The majority of the participants were female. Ages of the participants ranged from twenty-two to sixty-two years. Finding of the study is that those students, who have poor computer attitude, have high level of computer anxiety. Library educators and other could help them improve their disposition and provide them with the skills necessary to negotiate the rapidly changing technological environment thereby putting them in a better position.

Steve Kennewell and Alex Morgan (2003)[14] conducted a study under the title "Student Teachers' Experiences and Attitudes Towards Using Interactive Whiteboards in the Teaching and Learning of Young Children" This paper focuses on one particular aspect of ICT in the classroom: the interactive whiteboard. It examines student teachers' reports of provision and use in placement schools and analyses their responses to attitude surveys. It also compares attitudes between groups of student teachers working with early years and upper primary classes.

In order to investigate the effects of IWB provision in the University and partner elementary schools, surveys were undertaken as part of the delivery of the ICT component of the Primary PGCE course using the virtual learning environment Blackboard. The surveys allowed the student teachers to comment on the provision and use in schools and their own attitudes to the technology. Preliminary findings indicate broad similarities in the attitudes and aspirations of the two cohorts, in contrast to the differences in extent of use observed in the Early Years and Upper Primary groups. Student teachers are highly enthusiastic and see the boards as an important feature of teaching and learning. They are prepared to spend extra time in practising with the technology and preparing resources in order to exploit the interactive features which they have seen engage the children.The initial education and training of teachers is helping develop understanding of the potential of interactive whiteboard technology for teachers and children, particularly in the early years of schooling.

Y. J. Katz(2002)[15] conducted a study under the title "Attitudes affecting college students' preferences for distance learning". Empirical studies that have examined psychological aspects of the use of Information and Communication Technology (ICT) have indicated that certain psychological attitudes of students

towards the use of ICT are of paramount importance when evaluating the effective use of distance learning approaches to instruction and learning. Distance learning at the tertiary level, through the medium of ICT, is seemingly affected by the same psychological attitudes that are known to be related to other successful ICT applications to learning and instruction. In the present study the relationship between two distance learning ICT-based configurations were examined.

The research sample consisted of 67 first year students who were registered the School of Education in at the Safe Regional College. All students were accepted for study on the basis of two main criteria: (a) college entrance psychometric examination scores, and (b) mean achievement level attained in school matriculation examinations. The results indicate that psychological attitudes held by students differentially facilitate efficient use of distance learning approaches. Satisfaction with learning, level of control of the learning process, and study motivation for distance learning are all positively related to the students' preferences for structured distance learning, whereas independence in learning is positively connected to students' preferences for the more open Internet functionality.

S Hollander (1999)[16] conducted a study under the title "Assessing and enhancing medical students' computer skills: a two-year experience". In 1984, the Association of American Medical Colleges (AAMC) issued recommendations for the reform of medical education. One recommendation was that information sciences be incorporated into the medical curriculum. In fall 1996, a survey was conducted to learn more about computer use by medical students at the Rockford regional site of the University of Illinois at Chicago College of Medicine. The purpose of the survey was to gather information not only about computer skills, but also about overall comfort level in using computers and about expectations for enhancing computer skills while attending medical school. Over a two year period, 208 students representing four classes received this survey in their e-mail. Non-respondents received a follow-up print copy in their student mailboxes. Results, based on a 60% response rate, showed a majority of Rockford students entered medical school with good skills in using e-mail and word processing, but many lacked the skills necessary to search the medical literature or to use computer-assisted instructional programs. Overall, 80% of students expected to learn more about computers while attending medical school. Results contributed to an increased effort to integrate computer

applications into the medical curriculum and to use computers as a means of communicating with students.

Jirhande N Asqari and J Haywood (1997)[17] conducted a study under the title "Computer awareness among medical students: a survey" The objective of the study was to assess the attitude of Edinburgh University medical students towards computers and to evaluate the effects of changes in the curriculum and intercalated BSc towards computer knowledge. During March to November 1995 a questionnaire was distributed in lectures, seminars and tutorials to all Edinburgh University medical students. Overall, 65% of students returned the questionnaire, divided equally between both genders. Only 2% of students had not used a computer in the previous year. The most frequent application used was E-mail and the most frequent site, the Greenfield suite micro lab, within the medical school. The average score for self-perceived computer knowledge on a scale of 0-10 was 4.19. This score was significantly higher for the students who own a computer and who have an intercalated BSc honours degree as well as the pre-clinical students compared to the clinical students. There is also a strong correlation between computer use and doing a second year special option module. With regards to attitude towards computers, 86% of students agreed that computer skills will be beneficial to them in their future career and 62% of all students wanted a structured course in computer use as part of the MB ChB course. There has been a general increase in computer literacy amongst the medical students in Edinburgh. This is specially so for the pre-clinical students who have had the brunt of the changes in the curriculum. The tendency for both the lower knowledge and use by the clinical students can, in part, be due to the accessibility of computers to these students.

T Koschmann (1995)[18] conducted a study under the title "Medical education and computer literacy: learning about, through, and with computers" The call for medical students to become literate in the uses of information technology has become a familiar refrain. Over ten years ago, the Association of American Medical College's GPEP Report recommended that medical schools incorporate into their curricula training in the use of such technology; however, in the intervening decade, discouragingly little progress has been made toward meeting this goal, even though the need for such changes has grown more compelling. The author contends that

teaching medical students to be computer-literate will not only enable them to use information technology competently, but will foster their capacity for "termless learning" which involves the ability to assess the adequacy of one's knowledge, to efficiently redress identified deficiencies, and to direct one's ongoing learning well in a rapidly changing world. He contends that by exposing medical students early in their training to the vast profusion of electronic information resources, medical educators can help produce a generation of practitioners who have a different orientation toward knowledge and learning. The author then assesses three different approaches to computer-literacy training: learning about computers, learning through computers (i.e., using computers as tools for instructional delivery), and learning with computers (i.e., requiring students to use computers in their work on a day-to-day basis). He concludes that none of the approaches is sufficient unto itself, but learning with computers offers the most powerful means of fostering the forms of termless learning that students will need to practice medicine in the future.

LM Osman, AL Muir (1994)[19] "Computer skills and attitudes to computer-aided learning among medical students"One hundred and forty-four third-year medical students at the University of Edinburgh were surveyed as to levels of computing skills and confidence in carrying out computing tasks. Attitudes to computer-aided learning for clinical teaching were also measured. Thirty-one per cent of students had not used a computer in the previous year and 38% had not used a computer outside supervised laboratory work. Twenty-two per cent had never used the university library computerized catalogue and 43% had never carried out a medline search using the library CD-ROM. Students were not confident of their ability to carry out simple computing tasks. Fifty-four per cent said they would need support or instruction in printing out a document, 69% were not confident they could copy a file onto a disk and 74% did not believe they could independently create a graph in a document. Students who had completed an intercalated honours year were significantly more skilled and confident in computing tasks. Attitudes to computer-aided learning were related to computing confidence. Medical students who have not acquired basic computer information technology (IT) skills by the third year of undergraduate training are unlikely to do so in the final hospital-based years. Undergraduate curricula for medical students must incorporate specific computer (IT) training.

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Chapter-3

Methodology

CHAPTER 3

METHODOLGY

This chapter deals with methodology used in the study and has been discussed under the following:

- Selection of the problem
- Need and purpose of the study
- Significance of the study
- Objective of the study
- Hypothesis
- Tools used for study
- Sample population
- Pilot survey
- Data collection procedure
- Data analysis method

Selection of the problem

The problem for present study entitled "ICT skills and attitude of library professionals of Maulana Azad Library, AMU"

Need and purpose of the study

ICT has revolutionized all the sphere of human life, each and every nook and corner, usage of ICT by a layman can be seen by open eyes, impact of ICT also can be seen on the library, libraries are being automated nowadays and from selection of the books to circulation of books and other information dissemination services ICT is being employed for the faster and efficient services. For the application of ICT attitude of library professionals has very much importance. The purpose of the study is to find out the attitude and skill of the library professionals of Maulana Azad Lbrary towards ICT.

Significance of the study

Attitude is a mental view or disposition specially as it indicates opinion or allegiance. If the attitude of person towards any technology is positive, surely the person will must has positive attitude towards the application of that technology in his organization. Thus the attitude of library professionals of Maulana Azad Lbrary towards ICT has very much importance in this ICT era when the development of any organization depends upon its ICT infrastructure. Positive attitude of library professionals of Maulana Azad Lbrary towards ICT will help in ICT application in library.

Hypothesis:

1. Attitude of library professionals of Maulana Azad Lbrary towards ICT is positive.
2. Skill and attitude of the male professionals are more positive than female professionals.
3. Those who own computer at their home their skill and attitude are more positive than those who do not own computer.
4. More aged professionals have more positive skill and attitude towards ICT.
5. More experienced professionals have more positive skill and attitude towards ICT.

Objective of the study

Objective of the study is to find out the skill and attitude of library professionals of Maulana Azad Lbrary towards ICT and impact of gender, computer ownership, age and experience on ICT skill and attitude of library professionals of Maulana Azad Lbrary towards ICT.

Tools used for the study

There are several techniques available for collecting data for the user studies such as questionnaire method, personal interview and observation. For this study the investigator used questionnaires for the data collection.

Sample population

The present study is conducted on a sample of 37 library professionals from Maulana Azad Library. A total of 37 permanent library professionals selected by random sampling method in this study.

Pilot survey

Pilot survey was conducted for the data collection before the final survey.15 questionnaires were distributed among the library professionals of Maulana Azad Library to check the feasibility of the questionnaires.

Data collection procedure

Questionnaires were personally distributed to the library professionals and collected back next day.55 questionnaires were distributed and 37 were collected back.

Data analysis method

Data of the usage of ICT of the respondents has been represented in pie graph, basic and core skill of the respondents has been represented in the table in percentage and questions concerning anxiety and attitude has been mixed and ranked on five point scale using Likart Scale and the result has been represented in percentage.

Chapter-4

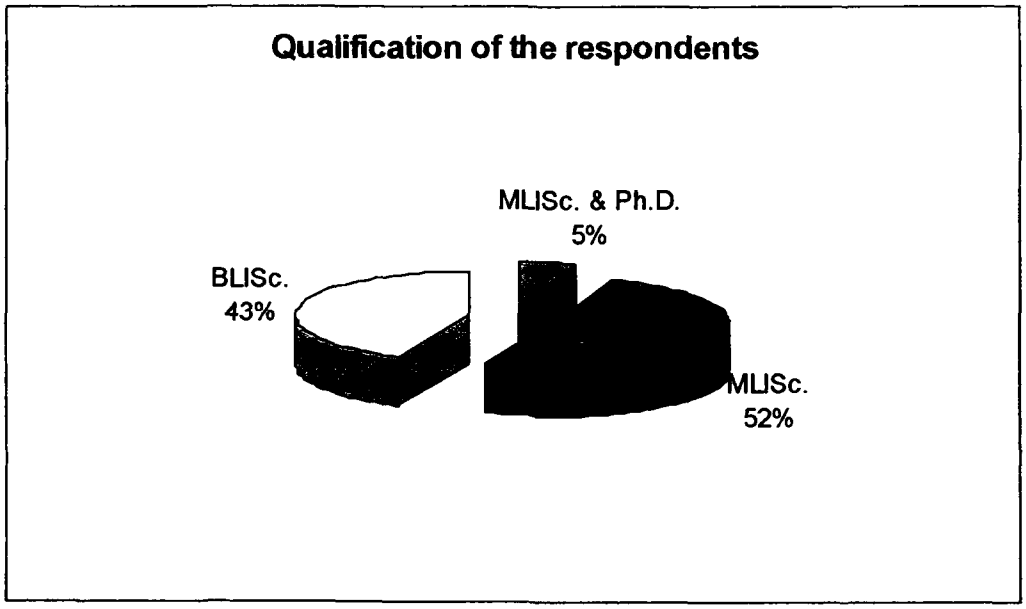
Data Analysis and Interpretation

The study was conducted under the title "ICT skill and attitude of library professionals of Maulana Azad Library, AMU". The study is survey based and 37 respondents were asked the questions regarding their ICT usage, ownership of computer, ICT skill, ICT training and their attitude towards ICT. There are 29 male respondent, they are divided in 7 categories according to their age.

First category is 31-35 years; there are 6 male and 2 female candidates. Second category is 36-40 years of age; this category consists of 6 male and 2 female candidates. Third one is 41-45 years which consists of 2 male candidates only. There are five male and 1 female candidates in fourth category. Fifth category consists of 3 male and 2 female. Sixth category consists of only one male candidate.

Qualification of the respondents is represented in graph. Qualification of the candidates has been divided in three parts, first one is the MLISc. and Ph.D ,second one is MLISc and third is BLISc. Percentage of the qualification of the respondents has been represented in figure no.1 in percentage.

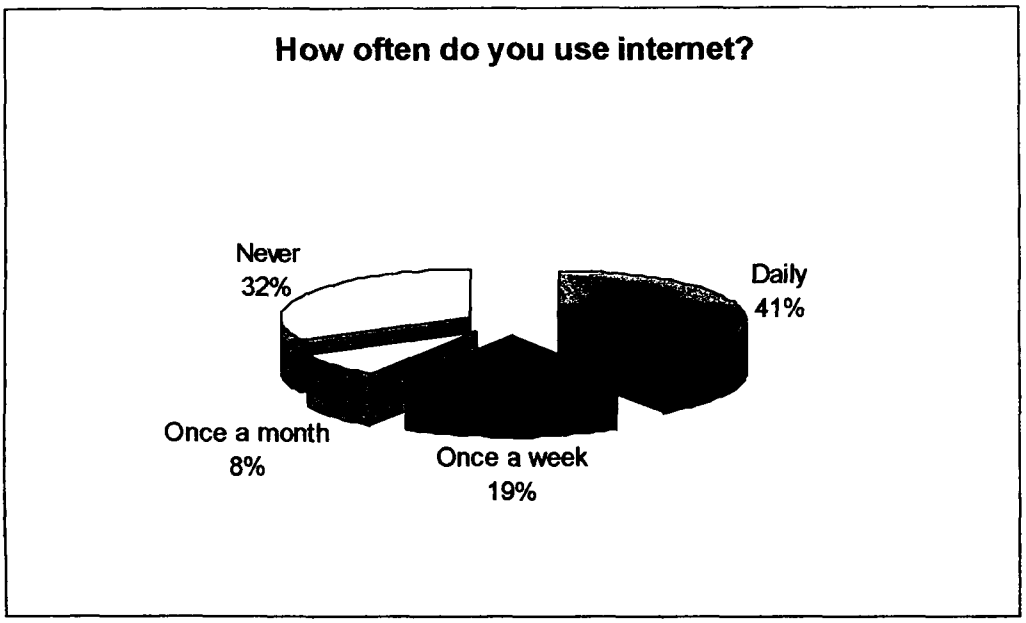
.. **Figure 1: Qualification of the respondents**



ICT USAGE

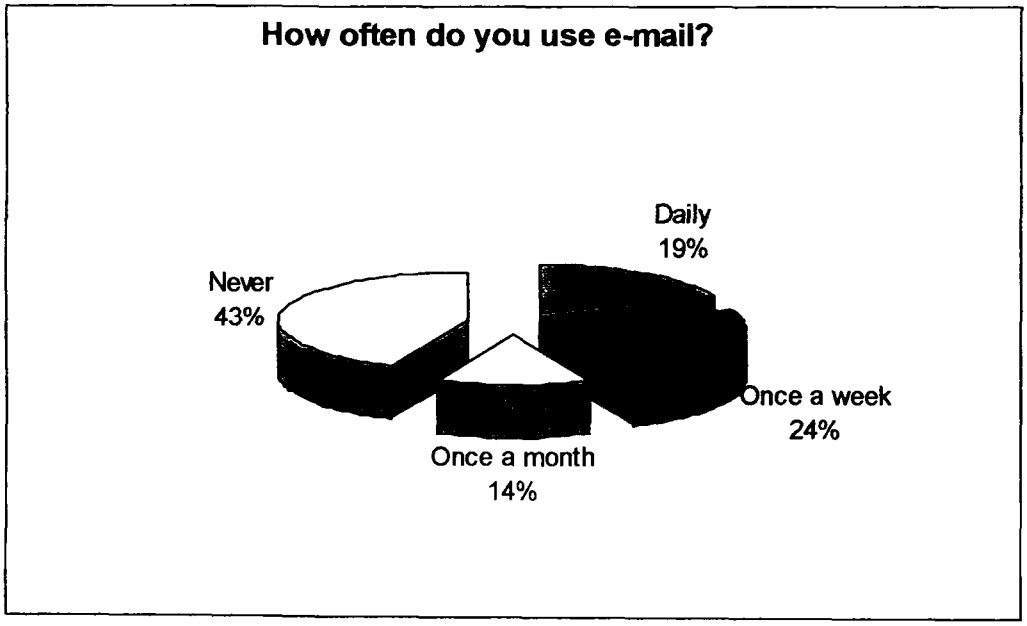
Usages of ICT by library professionals is represented in pie graph which is as following:

Figure 2: Usage of internet by respondents



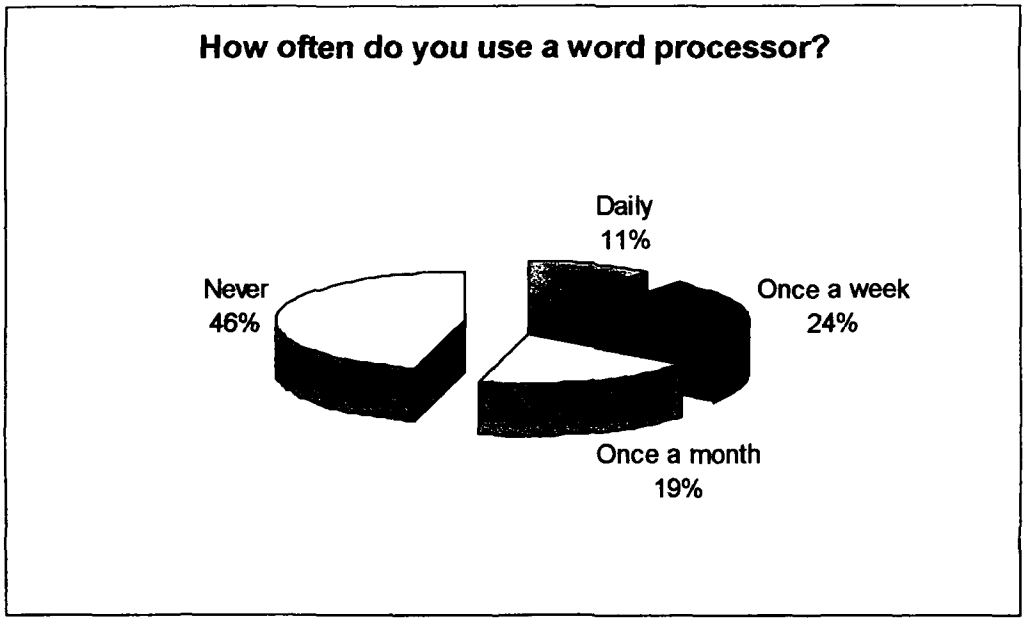
Pie graph shows that 41% of the professionals use internet daily, 19% use once a week, 8% use once in a month and 32% never use internet.

Figure 2: Usage of e-mail by respondents



The graph shows that 19% of the respondents use e-mail daily, 24% of the respondents once a week, 14% of the respondents once a month and 43% of the respondents never use e-mail.

Figure 3: Usage of word processor



The figure shows that 11% of the respondents use the word processor daily, 24% of the respondents once a week, 19% of the respondents once a month and46% of the respondents never use the word processor.

COMPUTER OWNERSHIP

54.05%respondents own a computer at their home and 45.94% do not own a computer.

SKILL OF THE LIBRARY PROFESSIONALS

Skill of the library professionals, basic software and hardware skill has been measured and the result of the total number of professionals owning computer at their home have been represented in the table no.1

Table 1: Basic and core skill of respondents

Basic and core skills			
S.No	Questions	Yes	No
1	I can copy and paste material in 'document'.	64.86%	35.13%
2	I can send and attach document using e-mail.	54.05%	45.95%
3	I can use a virus protection security.	43.24%	56.75%
4	I am familiar with RAM capacity of my computer.	54.05%	45.94%
5	I can install a virus protection program	29.72%	70.27%
6	I can prepare and manipulate spread sheet.	27.02%	72.97%
7	I can access a CD ROM and other multimedia.	40.54%	59.45%
8	I can upload software from CD ROM.	27.02%	72.79%
9	I can access on-line journal.	54.05%	45.94%

Table shows that the basic ICT skill (like copy and paste material, sending mail with attachment of document) is not satisfactory. Amongst 37 respondents only 64.86% can copy and paste material in document and 54.05% can send and attach document using e-mail.

Skill regarding usage of virus protection and security system of the computer is very poor. Only 43.24% can use a virus protection .Awareness regarding hardware and software is also very low .Only 54.05%respondents are familiar from their RAM capacity of computer. Skill of installation of software is very poor. Only 29.72%can install a virus protection program. Only 40.54%respondents can access CD-ROM and other multimedia, and only 54.05% can access on-line journals.

TRAINING

Only 70.27% respondents have received ICT training but when their skill, usage and installation of software was analyzed, it was observed that a better training program is required to make them competent in this ICT era.

ATTITUDE

Attitude of the Maulana Azad Library is represented in the table no.2

Table 2: Attitude of the respondents

Sl. No	Attitude of the respondents	SD	D	U	A	SA
1	Workings with computer make me very nervous.	9	20	1	5	2
2	I get a sinking feeling when I think trying to use a computer.	15	17	0	3	2
3	I hesitate to use a computer for fear of making mistakes I correct.	13	13	3	7	1
4	ICT enables most effective way of resource sharing.	1	4	3	14	15
5	ICT help in making specific information available.	2	6	3	15	11
6	ICT will not reduce the number of library staff.	6	7	9	13	2
7	OPAC can be modified more easily than the card catalogue through ICT.	1	1	3	12	20
8	Online database provide more up	1	5	16	15	0
9	Data retrieved through print sources is authentic	0	2	11	21	3
10	Each year ICT offers more efficient ways to carry out library operation.	0	2	7	20	8
11	Computer create health and environment problem	2	8	8	19	00
12	Data storage on computer is highly risky in library	2	20	4	10	1
13	Expensive use of ICT has created job fear amongst library professionals.	3	13	8	11	2
14	Automated acquisition is not feasible for librarians.	5	13	10	8	1
15	Changes occurring due to ICT application are out of control of library professionals.	8	17	5	6	1

SD=strongly disagree D=disagree U=undecided A=agree SA=strongly agree

Analysis of the data shows that 89.18% respondents out of 37 have positive attitude towards ICT application in library and they do not feel anxiety while using ICT.

Is there any difference between skills and attitude of male and female respondents?

The skill of male and female respondents are represented in the table no.3

Table 3: Basic and core skills of male and female respondents

Basic and core skills of male and female respondents		Male		Female	
S.No	Questions	Yes	No	Yes	No
1	I can copy and paste material in 'document'.	75.86%	24.13%	37.50%	62.50%
2	I can send and attach document using e-mail.	58.62%	41.37%	25 %	75.%
3	I can use a virus protection security.	51.72%	48.27%	25. %	75. %
4	I am familiar with RAM capacity of my computer.	62.06%	37.93%	37.50%	62.50%
5	I can install a virus protection program	37.93%	62.06%	12.50%	87.50%
6	I can prepare and manipulate spread sheet.	27.58%	72.41%	25 %	75%
7	I can access a CD ROM and other multimedia.	48.27%	51.72%	25%	75 %
8	I can upload software from CD ROM.	41.37%	65.51%	12.50%	87.50%
9	I can access on-line journals.	58.62%	41.37%	37.50%	62.50%

Analysis of the data shows that 75.86% of the male respondents can copy and paste material in 'documents' while only 37.50% female can copy and paste, 58.62% male can send and attach document using e-mail but the percentage of female respondents who can send and attach document using e-mail is only 25%.

51.72% male can use a virus protection security but skill of female candidates concerning the use of virus protection is very low in comparison with male candidates and that is only 25%.Level of awareness with ICT of female respondents is also very low. It is 37.50% while it is 62.06% in male candidates .Skill regarding the use of software of female respondents is also very low in comparison with male respondents.

It is 12.50% and 37.93% respectively. Skill of installation of software of male and female respondents is 37.93% and 12.50% respectively. Only 25% female respondents can prepare and manipulate spread sheet while 27.58% male respondents are capable of perform the task. Skill for accessing the CD-ROM/DVD & other multimedia usage among the female respondents is also very low. Only 25% female can access a CD ROM/DVD.

Male respondents are in a better position in the skill relating to uploading software from CD ROM. The percentage of male respondents is 41.31% while female is only 12.50%.

58.62% male respondents access on-line journals but the percentage of female respondents is only 37.50%.Analysis of the above data shows that the skill of the female respondents is poorer than male respondents and attention is needed for the better skill development of the female respondents.

Attitude of the male respondents and female respondents is represented in table no.4 and 5.

Table 4: Attitude of male respondents

Sl. No	Attitude of male respondents	SD	D	U	A	SA
1	Workings with computer make me very nervous	6	15	1	5	2
2	I get a sinking feeling when I think trying to use a computer	11	13	0	3	2
3	I hesitate to use a computer for fear of making mistakes I correct.	10	10	2	5	2
4	ICT enables most effective way of resource sharing.	2	5	3	11	8
5	ICT help in making specific information available.	0	4	1	14	10
6	ICT will not reduce the number of library staff.	5	5	7	9	3
7	OPAC can be modified more easily than the card catalogue through ICT.	2	1	3	10	13
8	Online database provide more up	0	0	3	14	12
9	Data retrieved through print sources is authentic	0	3	9	16	1
10	Each year ICT offers more efficient ways to carry out library operation.	0	0	4	20	5
11	Computer create health and environment problem	2	5	8	14	0
12	Data storage on computer is highly risky in library	2	16	5	6	0
13	Expensive use of ICT has created job fear amongst library professionals.	2	11	6	9	1
14	Automated acquisition is not feasible for librarians.	4	9	7	8	1
15	Changes occurring due to ICT application are out of control of library professionals.	4	15	3	6	1

SD=strongly disagree D=disagree U=undecided A=agree SA=strongly agree

Table 5: Attitude of female respondents

Sl. No	Attitude of female respondents	SD	D	U	A	SA
1	Workings with computer make me very nervous	2	6	0	0	0
2	I get a sinking feeling when I think trying to use A computer	4	4	0	0	0
3	I hesitate to use a computer for fear of making mistakes I correct.	4	3	1	0	0
4	ICT enables most effective way of resource sharing.	0	1	2	2	3
5	ICT help in making specific information available.	0	0	2	4	2
6	ICT will not reduce the number of library staff.	0	1	2	4	1
7	OPAC can be modified more easily than the card catalogue through ICT.	0	0	0	3	5
8	Online database provide more up	0	0	0	5	3
9	Data retrieved through print sources is authentic	0	0	2	4	2
10	Each year ICT offers more efficient ways to carry out library operation.	0	0	2	3	3
11	Computer create health and environment problem	0	5	0	3	0
12	Data storage on computer is highly risky in library	1	5	0	2	0
13	Expensive use of ICT has created job fear amongst library professionals	1	2	3	2	0
14	Automated acquisition is not feasible for librarians.	1	3	4	0	0
15	Changes occurring due to ICT application are out of control of library professionals.	2	4	2	0	0

SD=strongly disagree D=disagree U=undecided A=agree SA=strongly agree

Analysis of the data represented in the table shows that 86.20% male respondents have positive attitude, 13.79% are neutral and 100% female have positive attitude towards ICT.

Does ownership of computer leave positive impact on skill and attitude of respondents?

Skill of the respondents owning computer at their home and those who not own is represented in table no.6

Table 6: Basic and core skills of respondents owning computer and not owning computer

Basic and core skills of respondents owning *computer and not owning*		**Owning**		**Not owning**	
Sl.No	**Questions**	**Yes**	**No**	**Yes**	**No**
1	I can copy and paste material in 'document'.	70%	30%	64.70%	35.29%
2	I can send and attach document using e-mail.	60%	40%	52.94%	47.05%
3	I can use a virus protection security.	50%	50%	35.29%	64.17%
4	5I am familiar with RAM capacity of my computer.	65%	35%	41.17%	58.82%
5	I can install a virus protection program	40%	60%	23.52%	76.47%
6	I can prepare and manipulate spread sheet.	25%	75%	11.76%	88.23%
7	I can access a CD-ROM/DVD and other multimedia.	40%	60%	35.29%	64.70%
8	I can upload software from CD-ROM.	40%	60%	17.64%	82.35%
9	I can access on-line journals.	55%	45%	52.94%	41.17%

Analysis of the skill of the respondents of both the categories it is found that the respondents who own the computer at their home their skill regarding copy and paste is little better than those who do not own computer at home. Percentage of the skill of both is 70% and 64.70% respectively.

Skill of the respondents owning computer regarding sending and attaching document using e-mail is better than those who do not own a computer, their skill is 60% and 52.94% respectively. Fifty percent of the respondents who own computer can use the virus protection program while the percentage of those who do not own computer is 35.29%.

Awareness with RAM capacity of computer of those who own computer is also better than those who do not who own a computer, 65% and 41.17% are familiar with RAM capacity of computer respectively.

Forty percent of the respondents who own a computer can install virus protection program, while the percentage of those who do not own a computer is only 23.52%.

Respondents who own a computer are better in manipulation of spread sheet from those who do not own computer their percentage is 25% and 11.76% respectively.

Forty percent respondents who own a computer can access a CD-ROM/DVD and other multimedia while 35.29% respondents who do not own a computer can access it. Forty percent respondents owning a computer can upload software from CD-ROM while 17.64% respondents who do not own a computer are able to upload software. Fifty five percent respondents owning a computer can access on-line journals while 52.94% who do not own a computer can access on-line journals.

Analysis of the data represented in the table shows that ownership of a computer leave a very positive impact on skill of the respondents.

ATTITUDE OF RESPONDENTS OWNING COMPUTER

Attitude of the respondents owning computer and not owning computer is represented in the table no.7 & 8

Table 7: Attitude of respondents owning computer

Sl. No	Attitude of respondents owning computer	SD	D	U	A	SA
1	Workings with computer make me very nervous	3	12	1	3	1
2	I get a sinking feeling when I think trying to use A computer	7	11	0	1	1
3	I hesitate to use a computer for fear of making mistakes I correct.	7	8	2	2	1
4	ICT enables most effective way of resource sharing.	3	2	3	8	5
5	ICT help in making specific information available.	0	2	2	9	7
6	ICT will not reduce the number of library staff.	4	3	7	5	1
7	OPAC can be modified more easily than the card catalogue through ICT.	1	1	2	5	11
8	Online database provide more up	0	0	1	11	8
9	Data retrieved through print sources is authentic	0	3	7	8	2
10	Each year ICT offers more efficient ways to carry out library operation.	0	0	3	10	7
11	Computer create health and environment problem	1	5	5	8	1
12	Data storage on computer is highly risky in library	1	7	5	6	0
13	Expensive use of ICT has created job fear amongst library professionals	1	6	1	5	1
14	Automated acquisition is not feasible for librarians.	4	4	7	5	0
15	Changes occurring due to ICT application are out of control of library professionals.	2	11	4	2	1

SD=strongly disagree D=disagree U=undecided A=agree SA=strongly agree

ATTITUDE OF RESPONDENTS NOT OWNING COMPUTER

Table 8: Attitude of respondents not owning computer

Sl. No	Attitude of respondents not owning computer	SD	D	U	A	SA
1	Workings with computer make me very nervous	5	9	0	2	1
2	I get a sinking feeling when I think trying to use A computer	7	7	0	2	1
3	I hesitate to use a computer for fear of making mistakes I correct.	6	7	0	3	1
4	ICT enables most effective way of resource sharing.	0	4	3	6	4
5	ICT help in making specific information available.	0	2	2	10	3
6	ICT will not reduce the number of library staff.	2	3	2	9	1
7	OPAC can be modified more easily than the card catalogue through ICT.	1	0	1	8	7
8	Online database provide more up	0	0	2	9	7
9	Data retrieved through print sources is authentic	0	0	4	12	1
10	Each year ICT offers more efficient ways to carry out library operation.	0	0	4	12	1
11	Computer create health and environment problem	0	5	3	9	0
12	Data storage on computer is highly risky in library	0	1	11	3	2
13	Expensive use of ICT has created job fear amongst library professionals	1	10	2	4	0
14	Automated acquisition is not feasible for librarians.	1	7	6	3	0
15	Changes occurring due to ICT application are out of control of library professionals.	2	10	1	4	0

SD=strongly disagree D=disagree U=undecided A=agree SA=strongly agree

Analysis of the data represented in the table no.6 and 7 shows that ownership of computer leave a minor change in the attitude of the respondents. Ninety percent respondents out of 20 have positive attitude towards ICT, while 10% are neutral, 88.22% respondents not owning computer have positive attitude towards ICT and 11.76% respondents are neutral.

Does age change the skill and attitude of the respondents?

Respondents have been divided according to their age in 7 categories which is represented in table no.9

Table 9: Age group

Age Group	Male		Female		Total
31-35 yrs.	6	(75%)	2	(25%)	8
36-40 yrs.	6	(75%)	2	(25%)	8
41-45 yrs.	2	(100%)	0	(0%)	2
46-50 yrs.	5	(83.33%)	1	(16.66%)	6
51-55 yrs.	3	(60%)	2	(40%)	5
56-60 yrs.	6	(85.71%)	1	(14.28%)	7
60+ yrs.	1	(100%)	0	(0%)	1

There are 75%male respondents and 25% female in age group 31-35 years, 75% and 25% are male and female respondents, respectively, in age group 36-40, 100% are male in age group 41-45, 83.335 and 16.66% male and female respectively in age group46-50 years, 85.715 and 14.28%male and female respectively in age group 56-60 years, and 100% respondents of age group of 60+ are male.

Skill of the different age category is represented in table no. 10

Table 10: Basic and core skills of age group

Basic and core skills of age group		31-35 yrs		36-40 yrs		41-45 yrs		46-50 yrs		51-55 yrs		56-60 yrs		60+ yrs	
S.No	Questions	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
1	I can copy and paste material in 'document'	87.50%	12 50%	62.50%	37.50%	00%	100%	83.33%	16.66%	40%	60%	71 42%	28.57%	100%	00%
2	I can send and attach document using e-mail.	75%	25%	50%	50%	00%	100%	83.33%	16.66%	40%	60%	42 85%	57.14%	00%	100%
3	I can use a virus protection security.	50%	50%	50%	50%	00%	100%	83.33%	16.665	20%	80%	14.28%	85 71%	100%	00%
4	I am familiar with RAM capacity of my computer	62.50%	37 50%	75%	25%	00%	100%	50%	50%	20%	80%	14.28%	85.71%	100%	00%
5	I can install a virus protection program	50%	50%	25%	75%	00%	100%	33.33%	66.66%	20%	80%	14.28%	85 71%	00%	100%
6	I can prepare and manipulate spread sheet.	12.50%	87.50%	25%	75%	00%	100%	33.33%	66.66%	80%	20%	00%	100%	00%	100%
7	I can access a CD ROM and other multimedia	75%	25%	62.5	37.50%	00%	100%	33.33%	66.66%	40%	60%	00%	100%	00%	100%
8	I can upload software from CD ROM.	50%	50%	37.50%	62.50%	00%	100%	16.66%	83.33%	40%	60%	00%	100%	00%	100%
9	I can access on-line journal	87.50%	12 50%	37.50%	62.50%	00%	100%	83.33%	16.66%	40%	60%	42.85%	57 14%	00%	100%

Analysis of the data shows that 87.5% of 31-35 years, 62.5% of 36-40 years, 83.33% of 46-50 years, 40% of 51-55 years, 71.42% of 56-60 years and 100% of 60+ years of age can copy and paste material in document, while the respondents of 41-45 category can not copy and paste.

75% of 31-35, 50% of 36-40, 83.33% 0f 46-50, 40%0f 51-55, and 42.85% of 56-60 years of age respondents can send and attach document using e-mail, while respondents from category of 41-45 and 60+ can not send and attach document using e-mail.

50% of 31-35, 50% of 36-40, 83.33% of 46-50, 20% of 51-55, 14.28% of 56-60 and 100% of 60+ years of age respondents can use a virus protection security, while respondents from category of 41 -45 can not use.

62.5% of 31-35, 75% of 36-40, 50% of 46-50 and 40% of 51-55 years of age respondents are familiar with RAM capacity of computer.

50% of 31-35, 25% of 36-40, 33.33% of 46-50, 20% of 51-55 and 14.28% of 56-60 years of age respondents can install a virus protection program while respondents from category of 41-45 years can not install.

12.5% of 31-35, 25% of 36-40, 33.33% of 46-50 and 80% of 51-55 years of age respondents can prepare and manipulate spread sheet while respondents from category of 41-45 and 56-60 years can not prepare and manipulate spread sheet.

75% of 31-35, 62.50% of 36-40, 33.33% of 46-50, and 40% of 51-55 years of age respondents can access a CD-ROM/DVD and other multimedia while respondents from category of 41-45 and 60+ years can not access a CD-ROM/DVD.

50% of 31-35, 37.50% of 36-40, 16.66% of 46-50, 40% of 51-55 years of age respondents can upload software from CD-ROM, while respondents from category of 41-45 and 56-60 years can not upload software.

87.5% of 31-35, 37.50% of 36-40, 83.33% of 46-50, 40% of 51-55 and 42.85% of 56-60 years of age respondents can access on-line journals.

ATTITUDE OF RESPONDENTS OF AGE CATEGORY

Attitude of the age category is represented in the table no.11-17

Table 11: Attitude of respondents of age category of 31-35 years

Sl. No	Attitude of respondents of age category of 31-35 years	SD	D	U	A	SA
1	Workings with computer make me very nervous	2	5	0	1	0
2	I get a sinking feeling when I think trying to use A computer	4	3	0	1	0
3	I hesitate to use a computer for fear of making mistakes I correct.	2	4	0	2	0
4	ICT enables most effective way of resource sharing.	0	2	1	1	4
5	ICT help in making specific information available.	0	0	1	4	3
6	ICT will not reduce the number of library staff.	1	2	2	3	0
7	OPAC can be modified more easily than the card catalogue through ICT.	0	1	0	4	3
8	Online database provide more up	0	0	0	3	5
9	Data retrieved through print sources is authentic	0	1	4	3	0
10	Each year ICT offers more efficient ways to carry out library operation.	0	0	0	7	1
11	Computer create health and environment problem	0	2	3	3	0
12	Data storage on computer is highly risky in library	0	6	0	2	0
13	Expensive use of ICT has created job fear amongst library professionals	0	4	1	3	0
14	Automated acquisition is not feasible for librarians.	2	3	2	1	0
15	Changes occurring due to ICT application are out of control of library professionals.	1	4	0	3	0

SD=strongly disagree D=disagree U=undecided A=agree SA=strongly agree

Analysis of the data shows that the attitude of the age category of 31-35 years is positive, 87.5% respondents have positive attitude towards ICT while 12.5% are neutral or undecided.

Table 12: Attitude of respondents of age category of 36-40 years

Sl. No	Attitude of respondents of age category of 36-40 years	SD	D	U	A	SA
1	Workings with computer make me very nervous	2	5	0	1	0
2	I get a sinking feeling when I think trying to use A computer	2	5	0	1	0
3	I hesitate to use a computer for fear of making mistakes I correct.	3	1	2	2	0
4	ICT enables most effective way of resource sharing.	1	1	2	3	1
5	ICT help in making specific information available.	0	0	2	4	2
6	ICT will not reduce the number of library staff.	0	2	5	1	0
7	OPAC can be modified more easily than the card catalogue through ICT.	0	0	1	4	3
8	Online database provide more up	0	0	1	4	3
9	Data retrieved through print sources is authentic	0	0	3	4	1
10	Each year ICT offers more efficient ways to carry out library operation.	0	0	2	4	2
11	Computer create health and environment problem	0	3	2		3
12	Data storage on computer is highly risky in library	1	4	1	2	0
13	Expensive use of ICT has created job fear amongst library professionals	0	2	3	2	0
14	Automated acquisition is not feasible for librarians.	1	4	1	2	0
15	Changes occurring due to ICT application are out of control of library professionals.	0	4	3	1	0

SD=strongly disagree D=disagree U=undecided A=agree SA=strongly agree

Analysis of the data shows that the attitude of the age category of 36-40 years is positive, 87.5% respondents have positive attitude towards ICT while 12.5% are neutral or undecided.

Table 13: Attitude of respondents of age category of 41-45 years of age

Sl. No	Attitude of respondents of age category of 41-45 years of age	SD	D	U	A	SA
1	Workings with computer make me very nervous	0	1	1	0	0
2	I get a sinking feeling when I think trying to use A computer	0	2	0	0	0
3	I hesitate to use a computer for fear of making mistakes I correct.	0	2	0	0	0
4	ICT enables most effective way of resource sharing.	0	0	0	2	0
5	ICT help in making specific information available.	0	0	0	2	0
6	ICT will not reduce the number of library staff.	1	0	0	1	0
7	OPAC can be modified more easily than the card catalogue through ICT.	0	0	0	1	1
8	Online database provide more up	0	0	0	2	0
9	Data retrieved through print sources is authentic	0	0	1	1	0
10	Each year ICT offers more efficient ways to carry out library operation.	0	0	0	2	0
11	Computer create health and environment problem	0	0	0	2	0
12	Data storage on computer is highly risky in library	1	0	1	0	0
13	Expensive use of ICT has created job fear amongst library professionals	0	2	0	0	0
14	Automated acquisition is not feasible for librarians.	0	0	2	0	0
15	Changes occurring due to ICT application are out of control of library professionals.	1	1	0	0	0

SD=strongly disagree D=disagree U=undecided A=agree SA=strongly agree

Analysis of the data shows that the attitude of the age category of 41-45 years is positive, 100% respondents have positive attitude towards ICT.

Table 14: Attitude of respondents of age category of 46-50 years of age

Sl. No	Attitude of respondents of age category of 46-50 years of age	SD	D	U	A	SA
1	Workings with computer make me very nervous	2	3	0	1	0
2	I get a sinking feeling when I think trying to use A computer	4	2	0	0	0
3	I hesitate to use a computer for fear of making mistakes I correct.	5	1	0	0	0
4	ICT enables most effective way of resource sharing.	1	1	0	2	2
5	ICT help in making specific information available.	0	2	0	2	2
6	ICT will not reduce the number of library staff.	2	1	0	2	1
7	OPAC can be modified more easily than the card catalogue through ICT.	2	0	1	0	3
8	Online database provide more up	0	0	0	2	4
9	Data retrieved through print sources is authentic	0	1	2	2	1
10	Each year ICT offers more efficient ways to carry out library operation.	0	0	1	4	1
11	Computer create health and environment problem	1	2	0	2	1
12	Data storage on computer is highly risky in library	1	3	1	1	0
13	Expensive use of ICT has created job fear amongst library professionals	1	2	1	1	1
14	Automated acquisition is not feasible for librarians.	1	3	0	1	1
15	Changes occurring due to ICT application are out of control of library professionals.	2	2	1	0	1

SD=strongly disagree D=disagree U=undecided A=agree SA=strongly agree

Analysis of the data shows that the attitude of the age category of 46-50 years is positive100% respondents have positive attitude towards ICT.

Table 15: Attitude of respondents of age category of 51-55 years of age

Sl. No	Attitude of respondents of age category of 51-55 years of age	SD	D	U	A	SA
1	Workings with computer make me very nervous	2	2	0	1	0
2	I get a sinking feeling when I think trying to use A computer	3	1	0	1	0
3	I hesitate to use a computer for fear of making mistakes I correct.	3	1	0	1	0
4	ICT enables most effective way of resource sharing.	0	0	0	4	1
5	ICT help in making specific information available.	0	0	1	3	1
6	ICT will not reduce the number of library staff.	2	0	1	1	1
7	OPAC can be modified more easily than the card catalogue through ICT.	0	0	0	1	4
8	Online database provide more up	0	0	0	2	3
9	Data retrieved through print sources is authentic	0	0	0	4	1
10	Each year ICT offers more efficient ways to carry out library operation.	0	0	1	2	2
11	Computer create health and environment problem	1	1	3	0	0
12	Data storage on computer is highly risky in library	0	3	1	1	0
13	Expensive use of ICT has created job fear amongst library professionals	1	1	1	2	0
14	Automated acquisition is not feasible for librarians.	0	1	3	1	0
15	Changes occurring due to ICT application are out of control of library professionals.	1	4	0	0	0

SD=strongly disagree D=disagree U=undecided A=agree SA=strongly agree

Analysis of the data shows that the attitude of the age category of 51-55 years is positive100% respondents have positive attitude towards ICT.

Table 16: Attitude of respondents of age category of 56-60 years of age

Sl. No	Attitude of respondents of age category of 56-60 years of age	SD	D	U	A	SA
1	Workings with computer make me very nervous	0	5	0	0	2
2	I get a sinking feeling when I think trying to use A computer	0	5	0	0	2
3	I hesitate to use a computer for fear of making mistakes I correct.	0	5	0	0	2
4	ICT enables most effective way of resource sharing.	0	2	2	1	2
5	ICT help in making specific information available.	0	1	1	3	2
6	ICT will not reduce the number of library staff.	0	1	1	5	0
7	OPAC can be modified more easily than the card catalogue through ICT.	0	0	1	3	3
8	Online database provide more up	0	0	2	3	2
9	Data retrieved through print sources is authentic	0	0	2	5	0
10	Each year ICT offers more efficient ways to carry out library operation.	0	0	2	2	3
11	Computer create health and environment problem	0	2	1	4	0
12	Data storage on computer is highly risky in library	0	3	1	3	0
13	Expensive use of ICT has created job fear amongst library professionals	1	2	2	2	0
14	Automated acquisition is not feasible for librarians.	0	2	2	3	0
15	Changes occurring due to ICT application are out of control of library professionals.	1	3	1	2	0

SD=strongly disagree D=disagree U=undecided A=agree SA=strongly agree

Analysis of the data shows that the attitude of the age category of 56-60 years is positive, 71.47% respondents have positive attitude towards ICT while 27.57% are neutral or undecided.

Table 17: Attitude of respondents of age category of 60+ years of age

Sl. No	Attitude of respondents of age category of 60+ years of age	SD	D	U	A	SA
1	Workings with computer make me very nervous	0	0	0	1	0
2	I get a sinking feeling when I think trying to use A computer	1	0	0	0	0
3	I hesitate to use a computer for fear of making mistakes I correct.	1	0	0	0	0
4	ICT enables most effective way of resource sharing.	0	0	0	0	1
5	ICT help in making specific information available.	0	0	0	0	1
6	ICT will not reduce the number of library staff.	0	1	0	0	0
7	OPAC can be modified more easily than the card catalogue through ICT.	0	0	0	0	1
8	Online database provide more up	0	0	0	1	0
9	Data retrieved through print sources is authentic	0	1	0	0	0
10	Each year ICT offers more efficient ways to carry out library operation.	0	0	0	1	0
11	Computer create health and environment problem	0	0	1	0	0
12	Data storage on computer is highly risky in library	0	1	0	0	0
13	Expensive use of ICT has created job fear amongst library professionals	0	1	0	0	0
14	Automated acquisition is not feasible for librarians.	1	0	0	0	0
15	Changes occurring due to ICT application are out of control of library professionals.	0	1	0	0	0

SD=strongly disagree D=disagree U=undecided A=agree SA=strongly agree

Analysis of the data shows that the attitude of the age category of 60+ years is positive100% respondents have positive attitude towards ICT.

Do more experienced respondents have more positive skill and attitude towards ICT?

Experience of the respondents has been divided in seven categories which is represented in table no.1

Table 18: Age Group

Age Group	Male		Female		Total
1-5 yrs.	6	(75%)	2	(25%)	8
6-10 yrs.	6	(75%)	2	(25%)	8
11-15 yrs.	2	(100%)	0	(0%)	2
16-20 yrs.	5	(83.33%)	1	(16.66%)	6
21-25 yrs.	3	(60%)	2	(40%)	5
26-30 yrs.	6	(85.71%)	1	(14.28%)	7
30+ yrs.	1	(100%)	0	(0%)	1

There are 8.10% respondents are from 31-35 years of experienced group, 27.02% respondents are from experienced group 6-10, 13.51% respondents are from 11-15, 10.81% respondents are from 16-20, 13.51% respondents are from 21-25, 24.32% respondents are from 26-30 and 2.70% respondents belong to category of 30+ years of experienced group.

Skill of the respondents of different experienced categories has been represented in table no.19

Table 19: Basic and core skills of experienced group

Basic and core skills of experienced group		1-5 yrs.		6-10 yrs.		11-15 yrs.		16-20 yrs		21-25yrs		56-60 yrs		60+ yrs	
S.No	Questions	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
1	I can copy and paste material in 'document'	100%	00%	50%	50%	80%	20%	75%	25%	80%	20%	55.55%	44 44%	00%	100%
2	I can send and attach document using e-mail	100%	00%	50%	50%	40%	60%	25%	75%	100%	00%	33.33%	66.66%	00%	100%
3	I can use a virus protection security.	66.66%	33.33%	40%	60%	60%	40%	50%	50%	60%	40%	22.22%	77 77%	00%	100%
4	I am familiar with RAM capacity of my computer.	66.66%	33.33%	60%	40%	80%	20%	25%	75%	80%	20%	33.335	66.66%	00%	100%
5	I can install a virus protection program	66.66%	33.33%	30%	70%	40%	60%	00%	100%	405	605	33.335	66.66%	00%	100%
6	I can prepare and manipulate spread sheet.	33.33%	66.66%	10%	905	20%	80%	00%	100%	60%	40%	33.33%	66.66%	00%	100%
7	I can access a CD ROM and other multimedia.	66.66%	33.33%	60%	40%	40%	60%	25%	75%	80%	20%	00%	100%	00%	1005
8	I can upload software from CD ROM.	33.335	66.66%	50%	50%	20%	80%	00%	100%	60%	00%	00%	100%	00%	100%
9	I can access on-line journal.	66.66%	33.33%	70%	30%	40%	60%	25%	75%	100%	00%	33.33%	66.66%	00%	100%

Analysis of the data shows that 100% respondents of 1-15, 50% of 6-10, 60% of 11-15, 75% of 16-20, 80% of 21-25, and 55.55% of 26-30 years of experienced category can copy and paste material in 'document'.

100% of 1-5. 50% of 6-10, 40% of 11-15,25% of 16-20,100% of 21-25 and 33.33% of 26-30 years of experienced category can send and attach document using e-mail, while respondents from category of 60+years can not send and attach document using e-mail.

66.66% of 1-5, 40% of 6-10, 60% of 11-15, 50% of 16-20, 60% of 21-25, and 22.22% of 26-30 years of experienced category can use a virus protection security, while respondents from category of 60+years can not use a virus protection security

66.66% of 1-5, 60% of 6-10, 80% of 11-15, 25% of 16-20, 80% of 21-25, and 33.33% of 26-30 years of experienced category are familiar with RAM capacity of computer, while respondents from category of 60+years are not familiar with RAM capacity of computer.

66.66% of 1-5, 30% of 6-10, 40% of 11-15, 40% of 21-25, and 33.33% of 26-30 years of experienced category can install a virus protection program, while respondents from category of 60+years can not install a virus protection program.

33.33% of 1-5, 10% of 6-10, 20% of 11-15, 60% of 21-25, and 33.33% of 26-30 years of experienced category can prepare and manipulate spread sheet, while respondents from category of 16-20 and 60+years can not prepare and manipulate spread sheet.

66.66% of 1-5, 60% of 6-10, 40% of 11-15, 25% of 16-20 and 80% of 21-25 years of experienced category can access a CD-ROM/DVD and other multimedia, while respondents from category of 26-30 and 60+years can not access a CD-ROM/DVD.

33.33% of 1-5, 50% of 6-10, 10% of 11-15 and 60% of 21-25years of experienced category can upload software from CD-ROM, while respondents from category of 16-20 and 60+years can not upload software from CD-ROM.

66.66% of 1-5, 70% of 6-10, 20% of 11-15, 25% of 16-20 and 100% of 21-25 and 33.33% of 26-years of experienced category can access on-line journals.

Attitude of different experienced categories is represented in table no.20.

Table 20: Attitude of respondents of experienced category 1-5 years

Sl. No	Attitude of respondents of experienced category 1-5 years	SD	D	U	A	SA
1	Workings with computer make me very nervous	2	0	0	1	0
2	I get a sinking feeling when I think trying to use A computer	2	0	0	1	0
3	I hesitate to use a computer for fear of making mistakes I correct.	1	1	0	1	0
4	ICT enables most effective way of resource sharing.	0	0	0	1	2
5	ICT help in making specific information available.	0	0	0	1	2
6	ICT will not reduce the number of library staff.	1	0	1	1	0
7	OPAC can be modified more easily than the card catalogue through ICT.	0	0	0	2	1
8	Online database provide more up	0	0	0	1	2
9	Data retrieved through print sources is authentic	0	0	1	2	0
10	Each year ICT offers more efficient ways to carry out library operation.	0	0	0	3	0
11	Computer create health and environment problem	0	0	1	2	0
12	Data storage on computer is highly risky in library	0	3	0	0	0
13	Expensive use of ICT has created job fear amongst library professionals	0	2	0	1	0
14	Automated acquisition is not feasible for librarians.	1	1	1	0	0
15	Changes occurring due to ICT application are out of control of library professionals.	0	2	0	1	0

SD=strongly disagree D=disagree U=undecided A=agree SA=strongly agree

Analysis of the data shows that attitude of 100% respondents of experienced category 1-5 years is positive.

Table 21: Attitude of respondents of experienced category 6-10 years

Sl. No	Attitude of respondents of experienced category 6-10 years	SD	D	U	A	SA
1	Workings with computer make me very nervous	1	9	0	0	0
2	I get a sinking feeling when I think trying to use A computer	4	6	0	0	0
3	I hesitate to use a computer for fear of making mistakes I correct.	3	4	2	1	0
4	ICT enables most effective way of resource sharing.	0	2	2	2	4
5	ICT help in making specific information available.	0	1	2	4	3
6	ICT will not reduce the number of library staff.	0	3	4	2	1
7	OPAC can be modified more easily than the card catalogue through ICT.	1	0	0	4	5
8	Online database provide more up	0	0	4	5	1
9	Data retrieved through print sources is authentic	0	2	1	5	2
10	Each year ICT offers more efficient ways to carry out library operation.	0	2	1	5	2
11	Computer create health and environment problem	0	5	2	3	0
12	Data storage on computer is highly risky in library	1	6	0	3	0
13	Expensive use of ICT has created job fear amongst library professionals	0	3	3	4	0
14	Automated acquisition is not feasible for librarians.	2	4	2	2	0
15	Changes occurring due to ICT application are out of control of library professionals.	1	4	2	3	0

SD=strongly disagree D=disagree U=undecided A=agree SA=strongly agree

Analysis of the data shows that attitude of 90% respondents of experienced category 6-10 years is positive, while 10% are neutral or undecided.

Table 22: Attitude of respondents of experienced category 11-15 years

Sl. No	Attitude of respondents of experienced category 11-15 years	SD	D	U	A	SA
1	Workings with computer make me very nervous	2	2	0	1	0
2	I get a sinking feeling when I think trying to use A computer	1	3	0	1	0
3	I hesitate to use a computer for fear of making mistakes I correct.	1	2	0	2	0
4	ICT enables most effective way of resource sharing.	0	1	1	3	0
5	ICT help in making specific information available.	0	1	1	2	1
6	ICT will not reduce the number of library staff.	1	1	2	1	0
7	OPAC can be modified more easily than the card catalogue through ICT.	0	0	1	2	2
8	Online database provide more up	0	0	2	2	1
9	Data retrieved through print sources is authentic	0	0	2	3	0
10	Each year ICT offers more efficient ways to carry out library operation.	0	0	1	3	1
11	Computer create health and environment problem	0	1	1	3	0
12	Data storage on computer is highly risky in library	1	1	1	2	0
13	Expensive use of ICT has created job fear amongst library professionals	0	2	1	2	0
14	Automated acquisition is not feasible for librarians.	1	1	2	1	0
15	Changes occurring due to ICT application are out of control of library professionals.	2	2	1	0	0

SD=strongly disagree D=disagree U=undecided A=agree SA=strongly agree

Analysis of the data shows that attitude of 80% respondents of experienced category 11-15 years is positive while 20% are neutral or undecided.

Table 23: Attitude of respondents of experienced category 16-20 years

Sl. No	Attitude of respondents of experienced category 16-20 years	SD	D	U	A	SA
1	Workings with computer make me very nervous	1	1	2	0	0
2	I get a sinking feeling when I think trying to use A computer	1	3	0	0	0
3	I hesitate to use a computer for fear of making mistakes I correct.	2	2	0	0	0
4	ICT enables most effective way of resource sharing.	0	0	1	2	1
5	ICT help in making specific information available.	0	1	0	3	0
6	ICT will not reduce the number of library staff.	1	0	0	2	1
7	OPAC can be modified more easily than the card catalogue through ICT.	0	0	1	3	0
8	Online database provide more up	0	0	0	2	2
9	Data retrieved through print sources is authentic	0	1	1	2	0
10	Each year ICT offers more efficient ways to carry out library operation.	0	0	0	4	0
11	Computer create health and environment problem	1	1	2	0	0
12	Data storage on computer is highly risky in library	0	4	0	0	0
13	Expensive use of ICT has created job fear amongst library professionals	1	2	1	0	0
14	Automated acquisition is not feasible for librarians.	2	2	0	0	0
15	Changes occurring due to ICT application are out of control of library professionals.	2	2	0	0	0

SD=strongly disagree D=disagree U=undecided A=agree SA=strongly agree

Analysis of the data shows that attitude of 100% respondents of experienced category 16-20 years is positive.

Table 24: Attitude of respondents of experienced category 21-25 years

Sl. No	Attitude of respondents of experienced category 21-25 years	SD	D	U	A	SA
1	Workings with computer make me very nervous	2	3	0	0	0
2	I get a sinking feeling when I think trying to use A computer	3	2	0	0	0
3	I hesitate to use a computer for fear of making mistakes I correct.	3	2	0	0	0
4	ICT enables most effective way of resource sharing.	0	0	0	4	1
5	ICT help in making specific information available.	0	0	0	4	1
6	ICT will not reduce the number of library staff.	2	0	1	2	0
7	OPAC can be modified more easily than the card catalogue through ICT.	2	0	1	1	1
8	Online database provide more up	0		1	3	1
9	Data retrieved through print sources is authentic	0	00	1	4	0
10	Each year ICT offers more efficient ways to carry out library operation.	0	0	2	2	1
11	Computer create health and environment problem	0	1	0	4	0
12	Data storage on computer is highly risky in library	0	3	1	1	0
13	Expensive use of ICT has created job fear amongst library professionals	1	2	2	0	0
14	Automated acquisition is not feasible for librarians.	0	3	1	1	0
15	Changes occurring due to ICT application are out of control of library professionals.	0	4	1	0	0

SD=strongly disagree D=disagree U=undecided A=agree SA=strongly agree

Analysis of the data shows that attitude of 100% respondents of experienced category 21-25 years is positive.

Table 25: Attitude of respondents of experienced category 26-30 years

Sl. No	Attitude of respondents of experienced category 26-30 years	SD	D	U	A	SA
1	Workings with computer make me very nervous	1	5	0	1	2
2	I get a sinking feeling when I think trying to use A computer	3	4	0	0	2
3	I hesitate to use a computer for fear of making mistakes I correct.	3	4	0	0	2
4	ICT enables most effective way of resource sharing.	1	2	2	1	3
5	ICT help in making specific information available.	0	1	1	2	5
6	ICT will not reduce the number of library staff.	1	2	1	5	0
7	OPAC can be modified more easily than the card catalogue through ICT.	1	0	1	3	4
8	Online database provide more up	0	0	1	5	3
9	Data retrieved through print sources is authentic	0	1	2	5	1
10	Each year ICT offers more efficient ways to carry out library operation.	0	0	1	5	3
11	Computer create health and environment problem	0	2	2	4	1
12	Data storage on computer is highly risky in library	0	4	1	3	1
13	Expensive use of ICT has created job fear amongst library professionals	1	3	2	2	1
14	Automated acquisition is not feasible for librarians.	2	0	4	2	1
15	Changes occurring due to ICT application are out of control of library professionals.	1	4	2	2	0

SD=strongly disagree D=disagree U=undecided A=agree SA=strongly agree

Analysis of the data shows that attitude of 77.77% respondents of experienced category 26-30 years is positive while 22.22% are neutral or undecided.

Table 26: Attitude of respondents of experienced category 30+ years

Sl. No	Attitude of respondents of experienced category 30+ years	SD	D	U	A	SA
1	Workings with computer make me very nervous	0	0	0	1	0
2	I get a sinking feeling when I think trying to use A computer	0	0	0	1	0
3	I hesitate to use a computer for fear of making mistakes I correct.	0	0	0	1	0
4	ICT enables most effective way of resource sharing.	00	0	0	1	0
5	ICT help in making specific information available.	0	0	0	0	1
6	ICT will not reduce the number of library staff.	1	0	0	0	0
7	OPAC can be modified more easily than the card catalogue through ICT.	0	0	0	0	1
8	Online database provide more up	0	0	0	1	0
9	Data retrieved through print sources is authentic	0	0	0	1	0
10	Each year ICT offers more efficient ways to carry out library operation.	0	0	0	0	1
11	Computer create health and environment problem	0	0	1	0	0
12	Data storage on computer is highly risky in library	0	0	1	0	0
13	Expensive use of ICT has created job fear amongst library professionals	0	0	0	1	0
14	Automated acquisition is not feasible for librarians.	0	0	0	1	0
15	Changes occurring due to ICT application are out of control of library professionals.	1	0	0	0	0

SD=strongly disagree D=disagree U=undecided A=agree SA=strongly agree

Analysis of the data shows that attitude of 100% respondents of experienced category 30+ years is positive.

CHAPTER-5

CONCLUSION, FINDINGS AND SUGGESTIONS

CHAPTER 5

CONCLUSION, FINDINGS & SUGGESTION

FINDINGS

1. Basic skill and familiarity with ICT is satisfactory but skill regarding usages of software, installation of software, uploading the software and accessing of multimedia is not satisfactory. Only half of the respondents can access online journals.
2. Most of the respondents do not have anxiety when it comes to them working with ICT.
3. Most of the respondents have received ICT training.
4. Attitude of the professionals of Maulana Azad Library is positive, only few of them are neutral or undecided.
5. ICT skill of male respondents is better than female respondents, but attitude of female respondents is more positive than male respondents.
6. Computer ownership leaves very positive impact on the skill of professionals but ownership of computer does not leave significant impact on attitude.
7. Both who own computer and who do not own have positive attitude towards ICT, but skill of respondents owning computer is better than those who do not own computer.
8. There is a little impact of age on skill and attitude of the respondents. Skill of respondents depends upon the usage of ICT. Attitude of the respondents of the entire age category is positive.
9. Experience also does not matter in ICT skill of the respondents. It depends upon the usage of ICT, those who use the ICT are more skilled than those who do not use ICT.

TENABILITY OF HYPOTHESES

Hypothesis

1. Attitude of library professionals of Maulana Azad Lbrary towards ICT is positive.

   Analysis of the data shows that skill of library professionals of Maulana Azad Library is poor, but attitude is positive, thus the hypothesis regarding the skill is rejected is rejected and the hypothesis regarding the attitude is proved.

Hypothesis

2. Skill and attitude of the male professionals are more positive than female professionals.

   Analysis of the data shows that skill of the mail library professionals is better than female professionals, but the attitude of female professionals is more positive than the male professionals. Thus the hypothesis regarding the skill is proved and hypothesis regarding the attitude is rejected.

Hypothesis

3. Those who own computer at their home their skill and attitude are more positive than those who do not own computer.

   Analysis of the data shows that ownership of a computer leaves a better impact on the skill, but it has little relationship with attitude. Skill of the professionals who own a computer are better in scale from those who do not own a computer at home, but the attitude of the professionals of both the categories is positive thus the hypothesis regarding skill is proved and hypothesis regarding attitude is rejected.

Hypothesis

4. More aged professionals have more positive skill and attitude towards ICT.

   Analysis of the data shows that age of the professionals has no relation with ICT skill and attitude. It depends on the usage of ICT. Those who use ICT are more positive in skill thus the hypothesis is rejected.

Hypothesis

5. More experienced professionals have more positive skill and attitude towards ICT.

   Data analysis shows that the experience of the professionals has no relation with skill and attitude positive skill and attitude depends on the usage of ICT. Thus the hypothesis is rejected.

CONCLUSION

Importance of ICT in library can be realized from ICT application in OPAC, CAS, SDI, ILL union catalogues and audio visual services. ICT has revolutionized each and every sphere of life; libraries are not left apart from the impact of ICT. ICT application is very important nowadays in library. Application of ICT depends upon the attitude of librarian and library professionals of the particular library. Thus attitude of library professionals have very much importance in the context of ICT application in library. ICT skill of the professionals depends upon the usage of ICT. There is little relation of ICT skill with attitude towards ICT. Computer ownership can change the professional's negative skill and attitude in positive. Age and experience does not influence on skill and attitude. Development of positive skill is depends upon the usage of ICT.

In this ICT era, positive attitude and skill of library professionals towards ICT and ICT application in libraries have very much importance. Attitude and skill of library professionals can be developed positively by training them and conducting seminars and conferences on the ICT application in library. Trained professionals with ICT and having positive attitude will ensure the development of libraries and information centers.

SUGGETIONS AND RECOMMENDATION

1. Proper ICT training should be given to the library professionals of the library to improve the ICT skill of the professionals.
2. More attention is required towards the female respondents regarding the ICT usage.
3. Respondents can improve their ICT skill by owning computer at their home.
4. Seminars and conferences on ICT should be held at least once in a year.
5. Job of the library professionals should be rotated and every professional should be given the chance to work with ICT in library.

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ANNEXURE - I

(QUESTIONNAIRE)

Dear library professional

I am a student of MLISc. and conducting a survey for my dissertation work on the topic "Attitude of library professionals toward ICT in Maulana Azad Library" under the supervision of Dr. Sudharma Haridasan, (Reader) Department of Library and Information Science. Kindly devote some of your valuable time in filling this questionnaire. I assure you that the data will be kept confidential.

Thank you

Ajaz Ahmad

Name:
Gender: male ( ) female ( )
Age:
Qualification
Designation: Librarian/Deputy Librarian/Curator/Assistant Librarian/Professional Assistant/Semi professional Assistant
How long you have been working in the library?.....

1. How often do you use internet?
   (I)Daily (ii) Once a week (iii) Once a month (IV) Never

2. How often do you use E-Mail?
   (I)Daily (ii) Once a week (iii) Once a month (IV) Never

3. How often do you use a word processor (Microsoft Excel, Lotus 123etc)?
   (I)Daily (ii) Once a week (iii) Once a month (IV) Never

4. Do you own a computer at home?
   Yes ( ) No ( )

5. I can copy and paste material in 'Document'.
   Yes ( ) No ( )

6. I can send and attach a document using E-Mail
   Yes ( ) No ( )

7. I can use a virus protection/security system.
   Yes ( ) No ( )

8. I am familiar with RAM capacity of my computer.
   Yes ( ) No ( )

9. I can install a virus protection program.
   Yes ( ) No ( )

10. I can prepare and manipulate a spread sheet.
    Yes ( ) No ( )

11. I can access a CD-ROM/DVD and other multimedia.
    Yes ( ) No ( )

12. I can upload software from CD-ROM.
    Yes ( ) No ( )

13. I can access online journal.
    Yes ( ) No ( )

14. Have you ever received any type of computer training?
    Yes ( ) No ( )

Tick any one of the appropriate answer:

15. Workings with computer make me very nervous
    (i) strongly disagree (ii) disagree (iii) undecided (iv) agree
    (v) strongly agree

16. I get a sinking feeling when I think trying to use a computer.
    (i) strongly disagree (ii) disagree (iii) undecided (iv) agree
    (v) strongly agree

17. I hesitate to use a computer for fear of making mistakes I correct.
    (i) strongly disagree (ii) disagree (iii) undecided (iv) agree
    (v) strongly agree

18. ICT enables most effective way of resource sharing.
    (i) strongly disagree (ii) disagree (iii) undecided (iv) agree
    (v) strongly agree

19. ICT help in making specific information available.
    (i) strongly disagree (ii) disagree (iii) undecided (iv) agree
    (v) strongly agree

20. ICT will not reduce the number of library staff.
    (i) strongly disagree (ii) disagree (iii) undecided (iv) agree
    (v) strongly agree

21. OPAC can be modified more easily than the card catalogue through ICT.
    (i) strongly disagree (ii) disagree (iii) undecided (iv) agree
    (v) strongly agree

22. Online database provide more up-to-date information.
(i) strongly disagree (ii) disagree (iii) undecided (iv) agree
(v) strongly agree

23. Data retrieved through print sources is authentic.
(i) strongly disagree (ii) disagree (iii) undecided (iv) agree
(v) strongly agree

24. Each year ICT offers more efficient ways to carry out library operation.
(i) strongly disagree (ii) disagree (iii) undecided (iv) agree
(v) strongly agree

25. Computer create health and environment problem.
(i) strongly disagree (ii) disagree (iii) undecided (iv) agree
(v) strongly agree

26. Data storage on computer is highly risky in library.
(i) strongly disagree (ii) disagree (iii) undecided (iv) agree
(v) strongly agree

27. Expensive use of ICT has created job fear amongst library professionals.
(i) strongly disagree (ii) disagree (iii) undecided (iv) agree
(v) strongly agree

28. Automated acquisition is not feasible for librarians.
(i) strongly disagree (ii) disagree (iii) undecided (iv) agree
(v) strongly agree

29. Changes occurring due to ICT application are out of control of library professionals.
(i) strongly disagree (ii) disagree (iii) undecided (iv) agree
(v) strongly agree

Comments and suggestions

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